VOLUME XLIII NUMBER ONE

THE NATIONAL GEOGRAPHIC MAGAZINE

JANUARY, 1923

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TO carry out the purposes for which it was founded thirty-four years ago, the National Geographic Society publishes this Magazine. All receipts are invested in the Magazine itself or expended directly to promote geographic knowledge.

ARTICLES and photographs are desired. For material which the Magazine can use, generous remuneration is made. Contributions should be accompanied by an addressed return envelope and postage.

IMMEDIATELY after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resultant given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization which was waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the historic expedition of Admiral Peary, who discovered the North Pole.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members through The Society to the Federal Government when the congressional appropriation for the purchase was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people and incorporated into a National Park.

THE Society is conducting extensive explorations and excavations in northwestern New Mexico, which was one of the most densely populated areas in North America before Columbus came, a region where prehistoric peoples lived in vast communal dwellings whose ruins are ranked second to none of ancient times in point of architecture, and whose customs, ceremonies and name have been engulfed in an oblivion more complete than any other people who left traces comparable to theirs.

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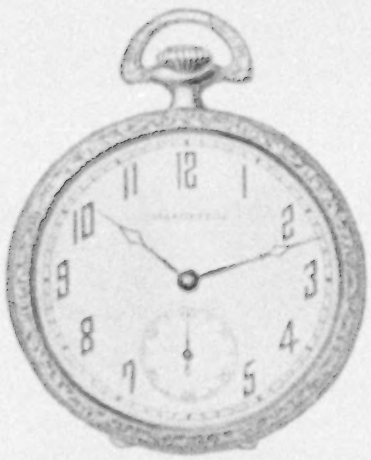

Hamilton No. 920 in "Florin" Case $117

Unusual are these inlaid cubist numerals, on a silver dial. 23-jewel, five-position, adjusted movement. Green gold permanent case.

Hamilton No. 920 in "Byron" Case $172

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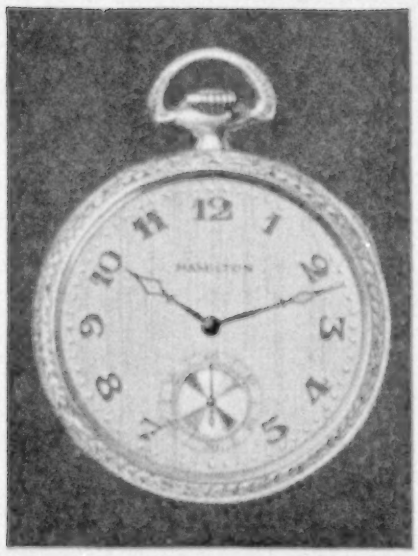

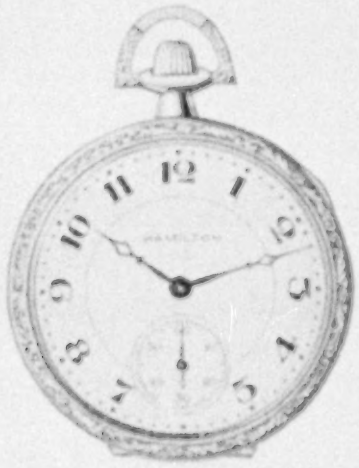

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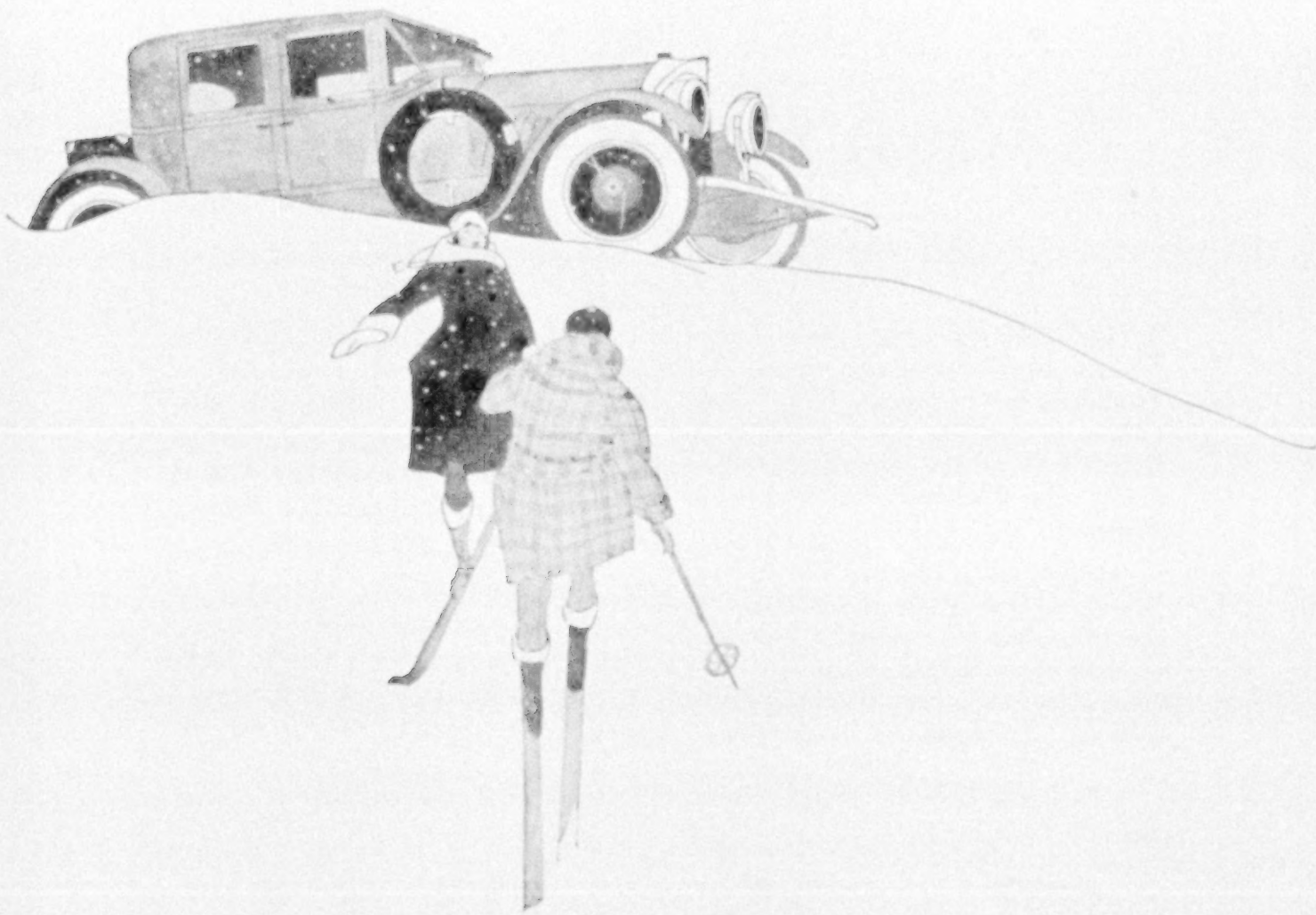

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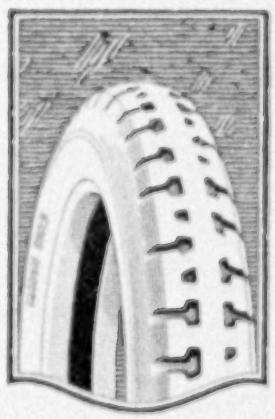
IN every community, men of broad experience and women of fine perceptions, have learned that the lasting thing is the thing of *true value*. And so, in their homes you find expressions of rare craftsmanship. And on their finest cars —Mason Cords. In short, their every possession reflects that ceaseless desire of its maker to attain the genuine and exceptional.



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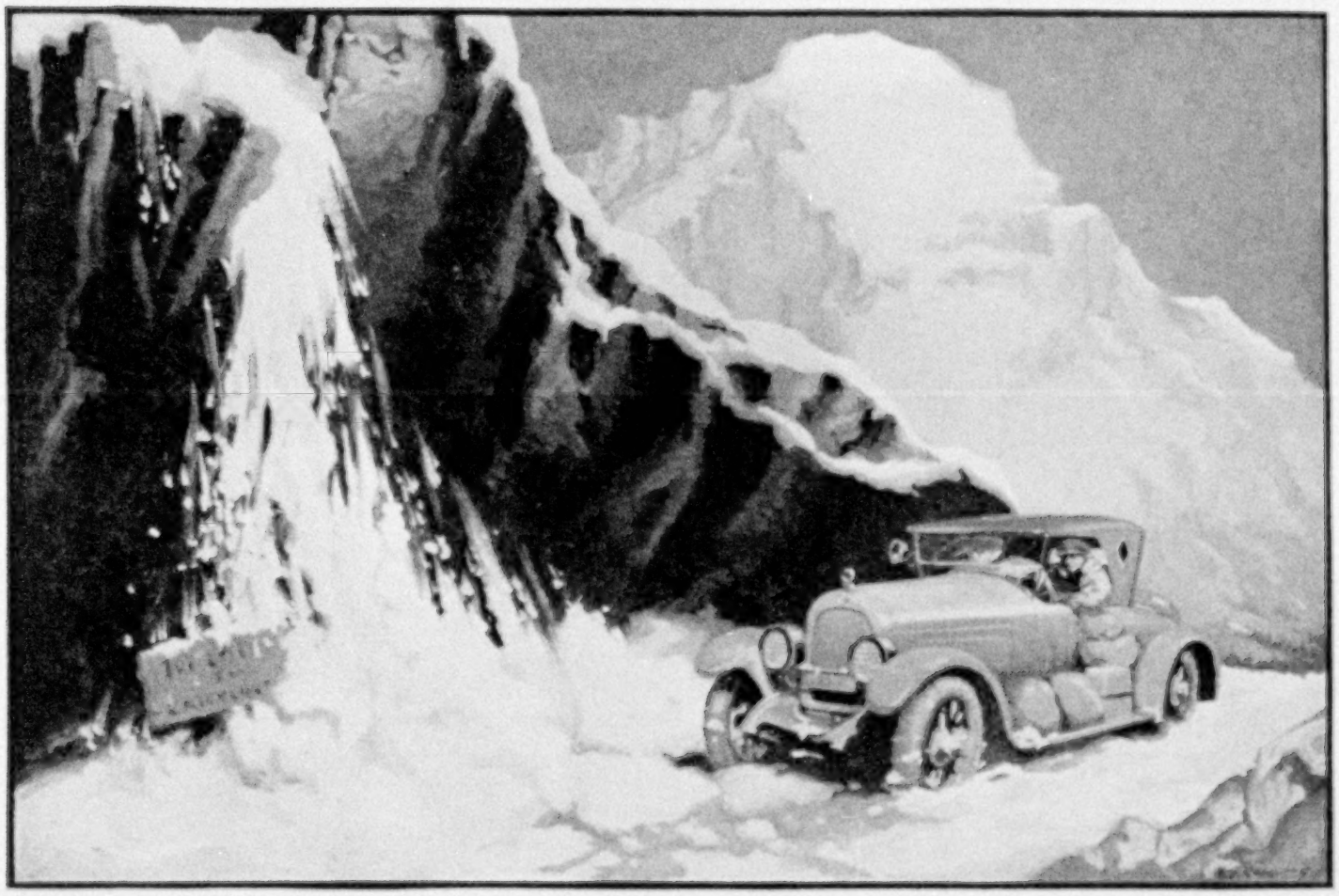

Barney Oldfield crossing over Raton Pass in midwinter—A painting by F. S. Cole

"My Marmon Surely Stands the Gaff
-cross continent eight times"

By Barney Oldfield

"I've driven many makes of high grade cars, but none ever had such hard service as my Marmons.

"The reason for this is that since adopting Marmons I have undertaken the manufacture of Oldfield tires, which I test personally. To get definite, first-hand knowledge of how my tires stand punishment, I've driven my Marmons continuously under most extreme conditions—high speed on race tracks, ordinary travel on bad roads and hard going on cross-country trips.

"My Marmons have served as pacemakers for a lot of races during the past two years, and I have driven all over the country visiting Oldfield dealers.

"Mrs. Oldfield is equally enthusiastic over her Marmon Coupe, having driven it across the continent twice. She comments constantly on its easy handling, comfort and dependability

"I've had a hunch that the national survey of Marmon mechanical maintenance would prove the great economy of this sturdy car, and I'm not surprised that the monthly average is as low as $4.71. My Marmons pile up mileage with practically no maintenance expense to me.

"Believe me, there's no car to equal a Marmon for dependability, performance, and economical maintenance."

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The Foremost Fine Car

GIVING WINGS TO WORDS

Born on the swift keys of the Underwood Portable, words are *winged.* Fleet and free, they give speed to expression, clarity to thought, fluency to writing and ease to reading.

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1 · 9 · 2 · 3

"A man has but one moment of life to call his own.

"The moment just passed into the score of Time's count, the moment which the hand of the clock trembles over, a hair's breadth yet to go—these are no man's to claim. One is gone forever; the other may mark the passage of his soul.

"Only this moment, this throb of the heart, this half-drawn breath, is a living man's to claim. The beggar has it—the monarch can command no more."

The Value of Time

CHIEF train dispatcher for the world, I am chief life dispatcher for all men.

Fresh minted from my hand, behold a New Year now spread out before you.

Half a million golden minutes—a royal treasure! Beware lest it slip away through careless fingers.

A New Year's resolution? Aye, here is one. Say to yourself every morning of the year, "Today I will make every minute count!"

That this will make all your dreams come true, who should know so well as I?

For I am Father Time.

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For over half a century, Father Time has been the official Trade Mark of those faithful guardians of America's minutes—

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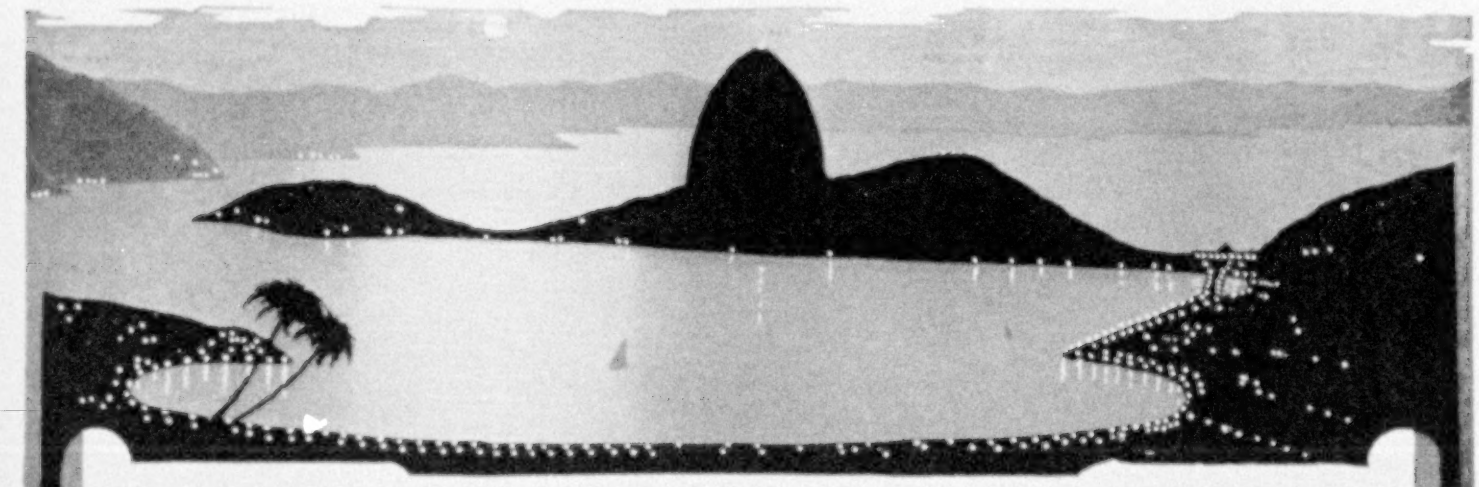

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These instincts, intuitions and impressions of yours can be trusted.

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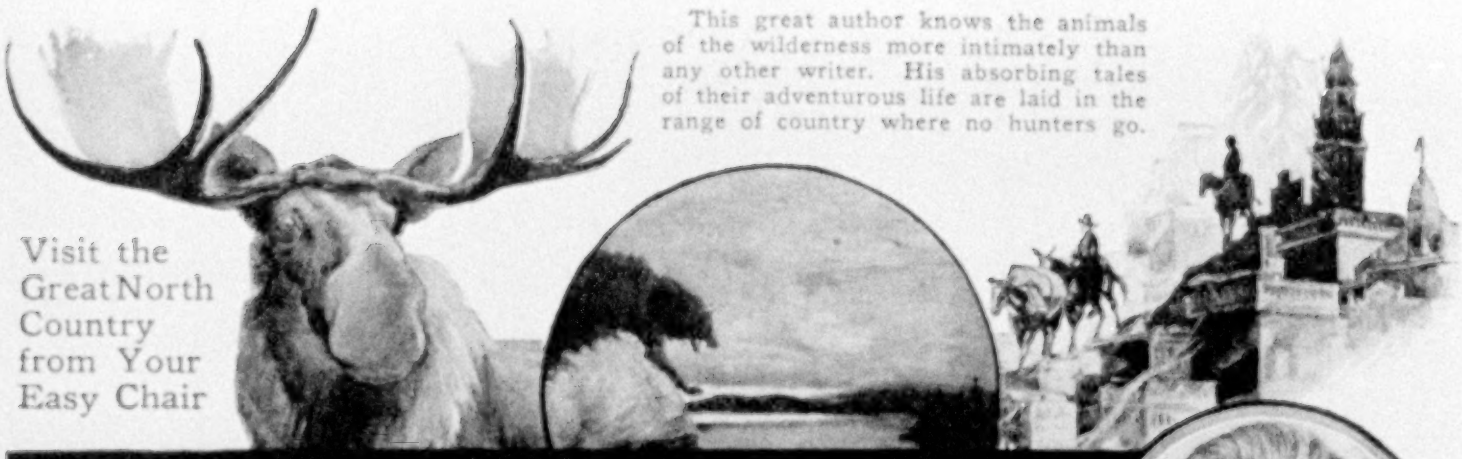
Five-Passenger Touring, $2485; Seven-Passenger Touring, $2685; Runabout, $2485; Sport Model, $2650; Coupe, $3175; Five-Passenger Sedan, $3275; Seven-Passenger Sedan, $3525; Five-Passenger Sedan Limousine, $3525; Seven-Passenger Sedan Limousine, $3575; at Detroit

ASK THE MAN WHO OWNS ONE



This great author knows the animals of the wilderness more intimately than any other writer. His absorbing tales of their adventurous life are laid in the range of country where no hunters go.

Visit the Great North Country from Your Easy Chair

From the Great White Way *to the* Great White Spaces

Pack up your troubles *and* follow CURWOOD *into* Adventureland

COME to the great magic land of the Northwest—come where the breath of Romance stirs in the blood of men and women—come to the land of adventure, strange, enchanting, wondrous. Stand under the great open sky—gaze at the wondrous Red Moon and the North Star—hear the cry of the wolf-pack—thrill to the magic of the forests—sit by the soft glow of the camp-fire—come to the top of the world and feel the spell of the vast white wilderness! You do not have to stir out of your easy chair to do it.

James Oliver Curwood takes you! Here is great drama, played by great and fearless men who quicken your red blood and lift you clear of care and worry, carrying you far and happily into Adventureland!

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6 Complete Volumes—Now at a Special Price

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There never was a writer with the compelling power of James Oliver Curwood. His books have that gripping, broad interest of big things done in a big way. Whether you read about "Baree, Son of Kazan," the story of the little outcast wolf-dog, or about "The Hunted Woman," the appeal fairly takes you by the heart. As no man has done before, he brings to you the atmosphere of the North, the appeal and mystery of the wilderness, the scent of crisp air, the overpowering sensation of great, untrammeled spaces.

Here are the humor and tragedy, the griefs and gladness of a great and glorious country. More than 2,000,000 copies of these books have been sold. The tales have been eagerly sought by moving picture companies. And now you have the opportunity of obtaining a beautiful six-volume set of James Oliver Curwood at practically HALF PRICE and on amazingly easy terms. But you need send no money now—just the coupon for free examination before you are asked to pay a penny.

SEND NO MONEY

If you are tired of ordinary novels, if you are "fed-up" with the humdrum of your daily routine, if you want to feel the clean, white snow of the great Northwest under your feet, if you want to live among real men and real women, follow Curwood into adventureland! Don't bother to send any money. Merely mail the coupon and the six volumes of Curwood will be sent to you at once. When they arrive, you have the privilege of examining them for seven days, and paying for them in small monthly installments or returning them. This offer is good only while the present special edition is available. Take advantage of it now—mail the coupon or a letter at once and make sure of your set.

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THIS COUPON SAVES YOU MONEY

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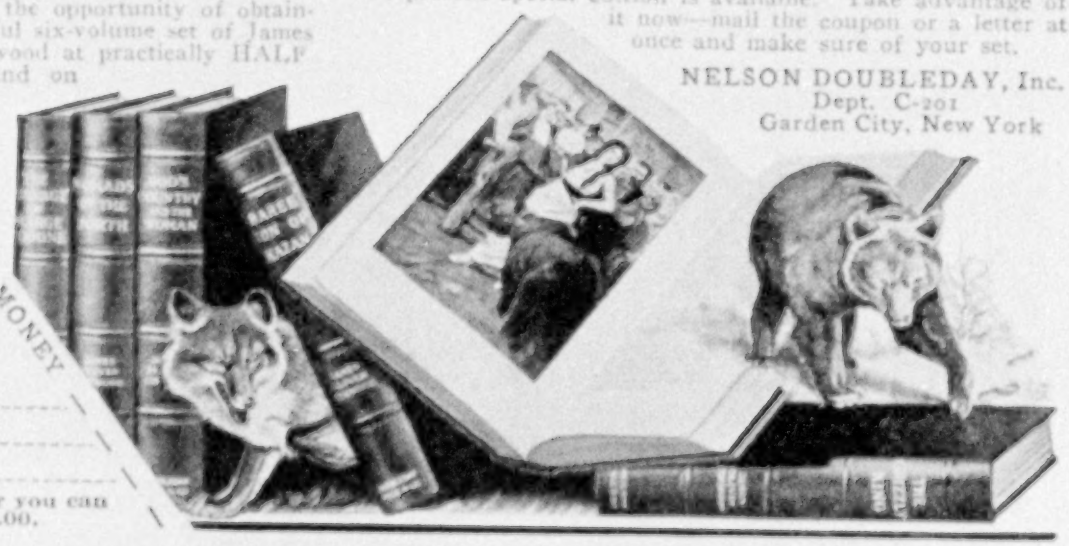
Kindly send me the six-volume set of James Oliver Curwood, bound in dark maroon cloth, with titles lettered in gold. I am to have the privilege of examining them for seven days and at the end of that time, if I decide to keep them, I will forward you $1.50 and then send $2.00 each month for three months, making a total of $7.50 in full payment, which is almost half the regular price. If I wish to do so, I may return the set before the end of the examination period and then will not owe you anything.

Name.....

Address.....

City..... State.....

By sending cash with your order you can secure this set for only $7.00.



You need this folder to plan your California trip

You still have time to escape three months of wintry wind, cold and sleet. Come to the land where coal shortages mean nothing in the face of warm sun rays and soft breezes from the blue Pacific—California!

California, where snow on distant mountain peaks merely accents the pleasure of warm, green valleys and orange and vineyard-clad slopes!

Six Great Gateways

Plan your trip aright. Too often visitors to California fail to see many of its wonders through not routing their tickets properly.

There are six great railroad gateways to California—the Shasta gateway from the north, the FeatherRiver (Western Pacific) and American River (Southern Pacific) gateways from the east, and the Union Pacific, Santa Fe and Sunset gateways from the south. There is also the enjoyable steamship route through the Panama Canal.

Really to see California you must enter from a northern or eastern gateway and return by a southern gateway (or vice versa), thus traversing the length of the State and seeing all of its wonders, *and at no greater cost.* *

We will gladly send you without charge a folder on how to see California. It contains a special map showing the State in relief, illustrates many of the points of interest and marks the six great gateways and the railroad lines traversing the State.

Your Summer Vacation

You will perhaps need this folder to plan your *summer* vacation trip. More and more people each year are finding in California the ideal summer vacation land.

The Pacific breezes which keep us warm in winter, likewise keep us cool in summer. For instance, San Francisco and Eureka, California, according to government statistics, are the two coolest cities in America during the summer months.

TEMPERATURES

Average for the Coldest Month

California		Eastern		Central	
Eureka	47°	Boston	27°	Chicago	24°
San Francisco	50°	Baltimore	33°	St. Louis	31°
Los Angeles	54°	W'lm'gt'n	46°	Memphis	40°
San Diego	54°	Savannah	50°	Vicksb'rg	47°

Average for the Warmest Month

Eureka	56°	Boston	71°	Chicago	72°
San Francisco	59°	Baltimore	77°	St. Louis	79°
Los Angeles	72°	W'lm'gt'n	79°	Memphis	81°
San Diego	69°	Savannah	81°	Vicksb'rg	80°

PRECIPITATION

(in inches)

Winter Monthly Average (Dec. to Apr.)

Sacramento	3.07	Boston	3.66	Chicago	2.33
San Francisco	3.55	Baltimore	3.39	St. Louis	2.84
Fresno	1.39	W'lm'gt'n	3.29	Memphis	4.91
Los Angeles	2.56	Savannah	3.23	Vicksb'rg	5.34

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Californians Inc., a non-profit organization to furnish authentic information about California, will gladly give you full details about the way to see the most of California for your fare.

Write today for this folder or for any other information about California you wish. There is no charge or obligation of any kind. Address

Californians Inc.

* The Shasta Route involves a slight additional cost from eastern points.

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Please send me without charge your folder—"How To See California."

Name _____

Address _____

New Way to Keep Fit

Walter Camp Shows How to Build Health and Efficiency in 10 Minutes' Fun Every Day—His "Daily Dozen" Now on Phonograph Records

NOT so long ago, if you were to go up to an "old-school" physical culturist and tell him that his methods were all wrong—that a person can keep perfectly fit in only 10 minutes a day—he would very likely scoff at you.

Yet today there are somewhat over a million people in America who know it can be done. They not only keep themselves in perfect physical trim in ten minutes a day—but they get lots of genuine *fun* while they're doing it!

Credit for the discovery of this easy short-cut method of body development goes to Walter Camp, perhaps the greatest authority on athletics and physical development in America today. Mr. Camp's whole system is embodied in twelve simple exercises which are known as the "Daily Dozen." Already these twelve exercises are completely revolutionizing present-day methods of physical culture.

The "Daily Dozen" made their first appearance during the war. A navy official claimed that the regular setting-up drills and calisthenics left his men tired out. Instead of building up efficiency, they often tore down efficiency. So he came to Walter Camp for a solution of the difficulty. The famous Yale coach, after months of experimenting, had just perfected his "Daily Dozen." So he turned them over to the army and navy officers.

The success of the "Daily Dozen" in the training camps was soon apparent. The officers in charge of the camps had never seen anything like it. The exercises seemed to double the pep of the boys in training. Instead of leaving them tired out and exhausted, the "Daily Dozen" gave them a wonderful new enthusiasm and vigor. Even members of the Cabinet, recognizing the great value of Mr. Camp's method, became ardent "Daily Dozen" fans. As a guard against physical break-down, due to overwork, they practiced the "Daily Dozen" religiously.

The "Daily Dozen" works on an entirely new plan—there are no chest weights, no Indian clubs, no apparatus of any kind. All one needs to do is imitate the exercises of caged animals, who keep fit by *stretching their stomach muscles!*

As Mr. Camp said in his recent speech before Congress, which is printed in the *Congressional Record:*

"We are all wild animals in a state of captivity. When you stop to think of it, man was meant to earn his bread by the sweat of his brow, and in the early days he had to dig for what he was going to eat. He had to work hard to get it. Today, instead of that, your food is brought to you on a platter. You do not work for it. A great deal too much of it is brought and what is the result? The result is that you are being injured by civilization.

"Now what do the wild animals in a state of captivity do? You do not see any lion or tiger kicking like this, to exercise his legs. He knows his legs are going to be good enough. But what is he doing all the time? He is stretching those big muscles of the body, bending and stretching his body muscles. That is an inherited instinct in those wild animals. The wild animals and the tame animals, too, know that it is the stretching of those body muscles that counts, and nothing else. Everything else takes care of itself."

It is on the principle of stretching that Mr. Camp has based his "Daily Dozen." These, as physical culture authorities now admit, provide all the exercise people really need to keep in proper physical condition.

And now, with the special permission and sanction of Mr. Camp, a wonderfully ingenious improvement has been made in the manner of doing the "Daily Dozen" which just doubles the enjoyment one usually gets from their practice.

Each one of the twelve exercises has been set to inspiring music on phonograph records that can be played on any disc machine. A chart accompanies each record showing by actual photographs just how to execute the "commands," which are given by a voice speaking on the record.

This innovation has made a decided hit with "Daily Dozen" fans. Each exercise has been adapted to a tune particularly fitted for the movements. So that all a person has to do is put on a record, and let his movements keep time to the spirited tune being played.

In this way, one is literally carried through the whole "Daily Dozen"—in most cases *without even realizing* that he is taking exercise—exercise which incidentally is building up a splendid reserve of health, strength and energy.

Some of the results brought about by the "Daily Dozen" to music are nothing short of astonishing. The exercises seem to release an entirely unsuspected supply of energy, which is reflected in a marked increase in one's capacity for both mental and physical exertion. People of nervous tendencies

have seen their nerves become strong and calm in a remarkably short time. Many, once troubled with insomnia, now enjoy eight hours of restful sleep regularly. Stout people have seen their excess fat disappear—often at a surprisingly rapid rate. Needless to state, all these benefits have resulted in great increases in mental and physical efficiency.

Music was the one thing needed to make the "Daily Dozen" a 100 per cent way of keeping fit. Music has a wonderful power to inspire action. A fine rousing tune, such as the great Sousa march, "The Stars and Stripes Forever," has a stimulating effect. It actually sweeps one along. That is why there is "no loafing on the job" when one does the "Daily Dozen" the new way.

No matter how "tired" one may be, all he needs to do is to put one of the "Daily Dozen" records on the phonograph. The music will do the rest. You will not want to stop until you have gone through the whole twelve exercises. Then, very likely, you will want to do them all over again—as many "fans" usually do.

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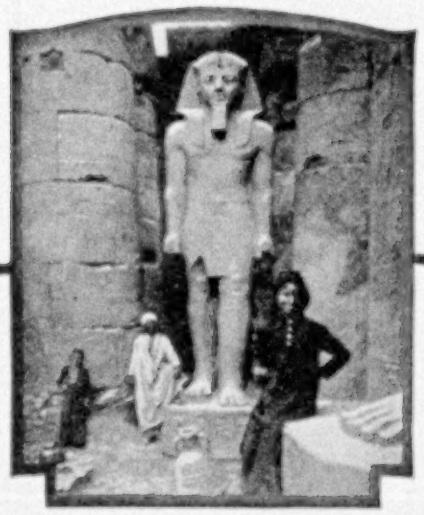

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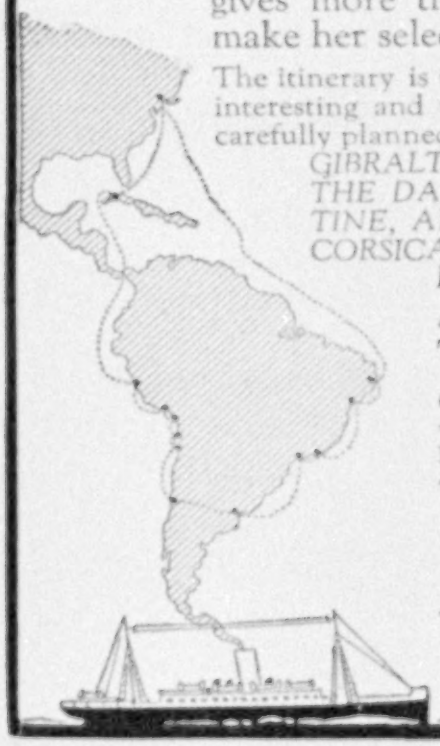

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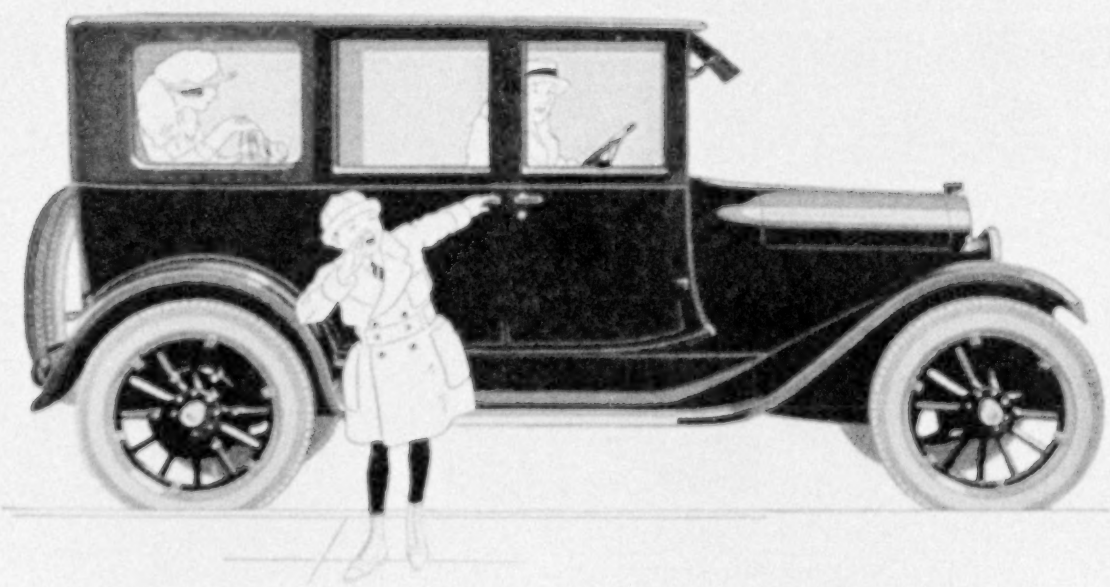

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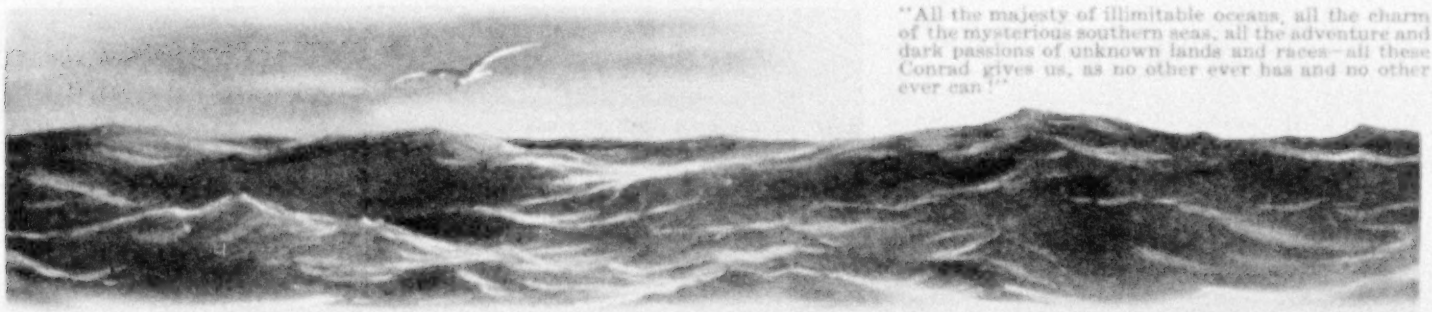

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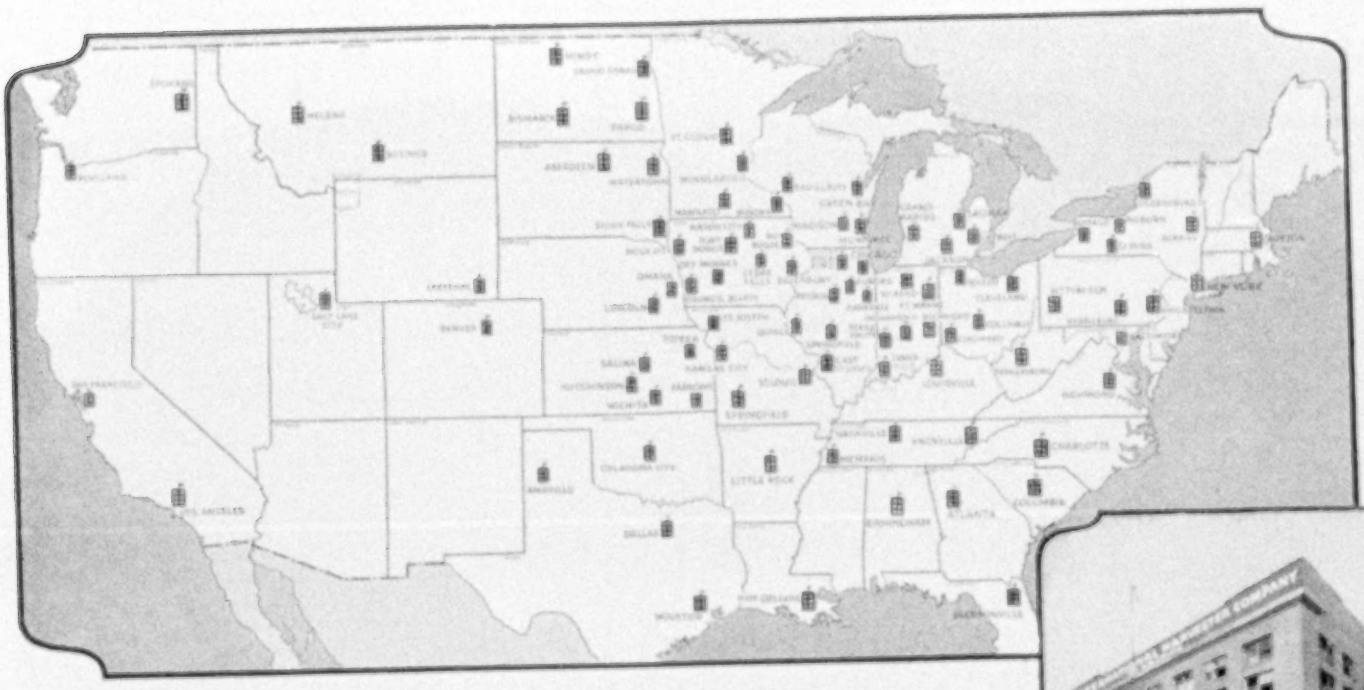

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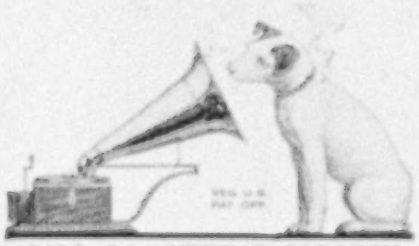

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VOL. XLIII, No. 1 WASHINGTON JANUARY, 1923

THE NATIONAL GEOGRAPHIC MAGAZINE

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THE ISLAND OF SARDINIA AND ITS PEOPLE

Traces of Many Civilizations to Be Found in the Speech, Customs, and Costumes of This Picturesque Land

BY PROF. GUIDO COSTA

With Illustrations from Photographs by Clifton Adams, Staff Photographer, National Geographic Magazine

HUB of the western Mediterranean is Sardinia. Along the trade route spokes which bind this rocky island to surrounding lands, a thousand diverse influences came to flavor the life and color the character of the Sardinians.

From the time when Phœnician ships found in Sardinia a counterpart of their home ports, where Lebanon comes down to meet the sea, the island west of the instep of the boot of Italy has been overrun by one race after another. Three continents have left their impress on the life and features of the people.

The island has lain open to influences from without. But the mountains, which almost monopolize the land, have so segregated the various parts that to this day each village has a flavor of its own.

Sardinia is still unspoiled. The banditry of the open road has become a mere tradition and the most romantic islander is liable to prove a solicitous friend. Hotels are few and trains are leisurely. But so diverse, so interesting, is the life among the rounded hills and on the widespread *Campidano* that the traveler is well repaid for such discomforts as result from sharing the life of the people, whose hospitality with the little they have shames the greedy magnificence of famed resorts.

Poor though she be in worldly goods, Sardinia is rich in welcome for those friends who come to visit her, try to understand, and willingly submit themselves to the same curious study that they give to the Sardinians in whose homes they live.

IRRIGATION AND AUTOMOBILES MAKE THEIR ADVENT IN SARDINIA

And let not the apostle of progress and standardized life be discouraged. European clothes are displacing the brilliant costumes for which Sardinia is rightly famous. Cagliari, citadel-crowned, now jangles with tram-cars which serve the lower town, with its steel-framed buildings beside wide thoroughfares. Automobiles are already disputing the roads with slow-paced oxcarts on crude wooden wheels. Irrigation works are under way, and soon the turbulent streams will be impounded in great inland lakes, with all the countryside enlivened by electricity, while vast regions are reclaimed for agriculture.

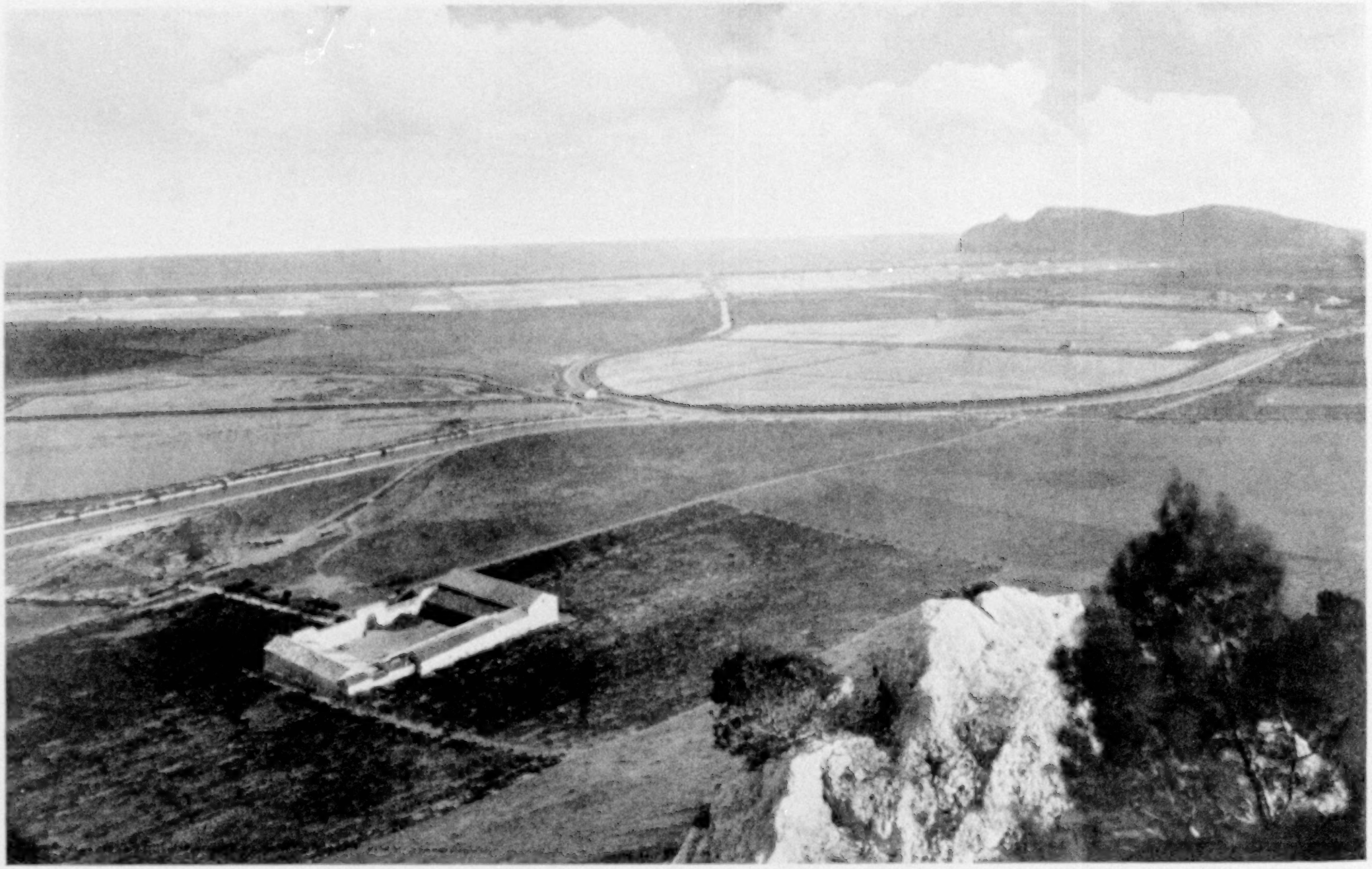
As yet, however, the tory of travel need not mourn too much. In the inland regions, Sunday flames forth in scarlet glory from the somber garb of working days, and diminutive donkeys and patient oxen slowly plod the roads which Romans built when Rome was mistress of the

PANORAMA OF CAGLIARI FROM THE SEA (SEE TEXT, PAGES 72 AND 74)

The largest port and most important city of Sardinia has a population of 70,000. Its wide Via Roma parallels the busy waterfront, and the new municipal building on the left is the finest in the island.

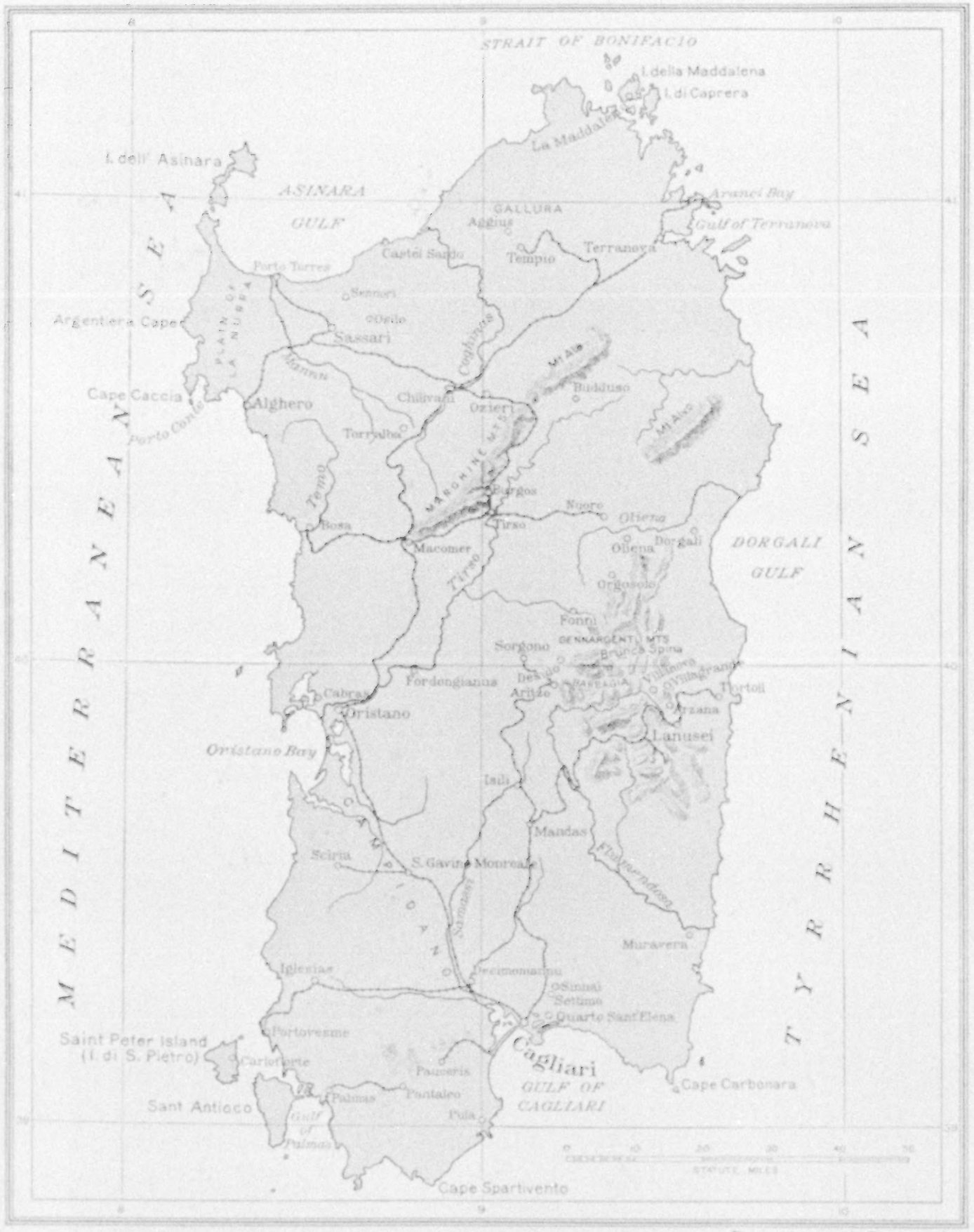
EVENING ON THE PLAIN OF MURTOS, NEAR TORRALBA

There are many flocks of sheep on the flat pasture lands, cared for by shepherd boys.



ITALY'S MOST IMPORTANT SALT WORKS, ON THE FLATS SOUTH OF CAGLIARI

Here the great piles of salt are handled by steam shovels. The sale of this commodity is under control of the government and is combined with the sale of tobacco in the thousands of little shops throughout the kingdom.



Drawn by A. H. Bumstead

A MAP OF THE ISLAND OF SARDINIA

In area, Sardinia is slightly smaller than Massachusetts and Rhode Island combined, with about one-fifth the population of those two States.

world. If the motor car does intrude amid bucolic solitude, it serves to carry one through charming scenes of rich diversity and thread upon a brief itinerary such smiling welcomes as one would travel far to see in larger and more favored lands.

The greater portion of the island is covered with low mountain ranges, most of which have a round, smooth shape. The southeast regions have peaks of Alpine grandeur, but the highest mountain in the island, the Gennargentu, is

more imposing for its mass than for its altitude of 6,233 feet. Its summit, which commands a wonderfully extensive view, may be easily reached on horseback, although its loftiest peaks are snow-covered during much of the year.

"SARDINIA TURNS ITS BACK UPON ITALY"

Along the eastern coast of Sardinia runs a mountain chain which presents a brusque escarpment toward the mainland and makes the island difficult of access on this side. No safe natural harbor or well-sheltered bay is to be found between Cape Carbonara and Aranci Bay.

On the western side, the mountains have gentler declivities, and here are situated the most beautiful gulfs of all the island — the gulf of Palmas, so much spoken of by Admiral Nelson, and the Porto Conte near Alghero, a natural harbor capable of sheltering the most powerful fleet in the world.

The most extensive Sardinian plain is that which stretches northwest from Cagliari to Oristano. It produces on the traveler a strange impression. Although it is scarcely 50 miles in length, it appears immense, for it is proportioned to the scale of surrounding objects, especially to the modest height of the mountain ranges which limit it.

In spring this plain, the two parts of which are respectively named the Campidano of Oristano and the Campidano of Cagliari, is covered in its uncultivated tracts with the most beautiful wild flowers, which impart to the scenery a warm, variegated tint and greatly embellish the landscape.

During the summer months a pitiless sun with scorching rays dries and burns everything, and the plain, covered as it is with a yellow, monotonous mantle of dried herbs, takes on a desolate appearance. The unpretentious villages, built of sun-baked bricks, acquire an aspect more miserable than before.

FIVE MONTHS OF THE YEAR WITHOUT RAIN

From June to the end of October no rain falls on the island. From week to week one cannot detect the slightest cloud in the blue sky, which in the hottest hours assumes a milky tint.

Two other plains, less extensive and interesting, lie in the upper part of the island—the Plain of Nurra in the northeast, which ends at Argentiera Cape, and the Campo of Ozieri, which lies near Chilivani, a junction point where four railway lines converge. Both have a somewhat different aspect from the Campidano.

Drawn by A. H. Bumstead

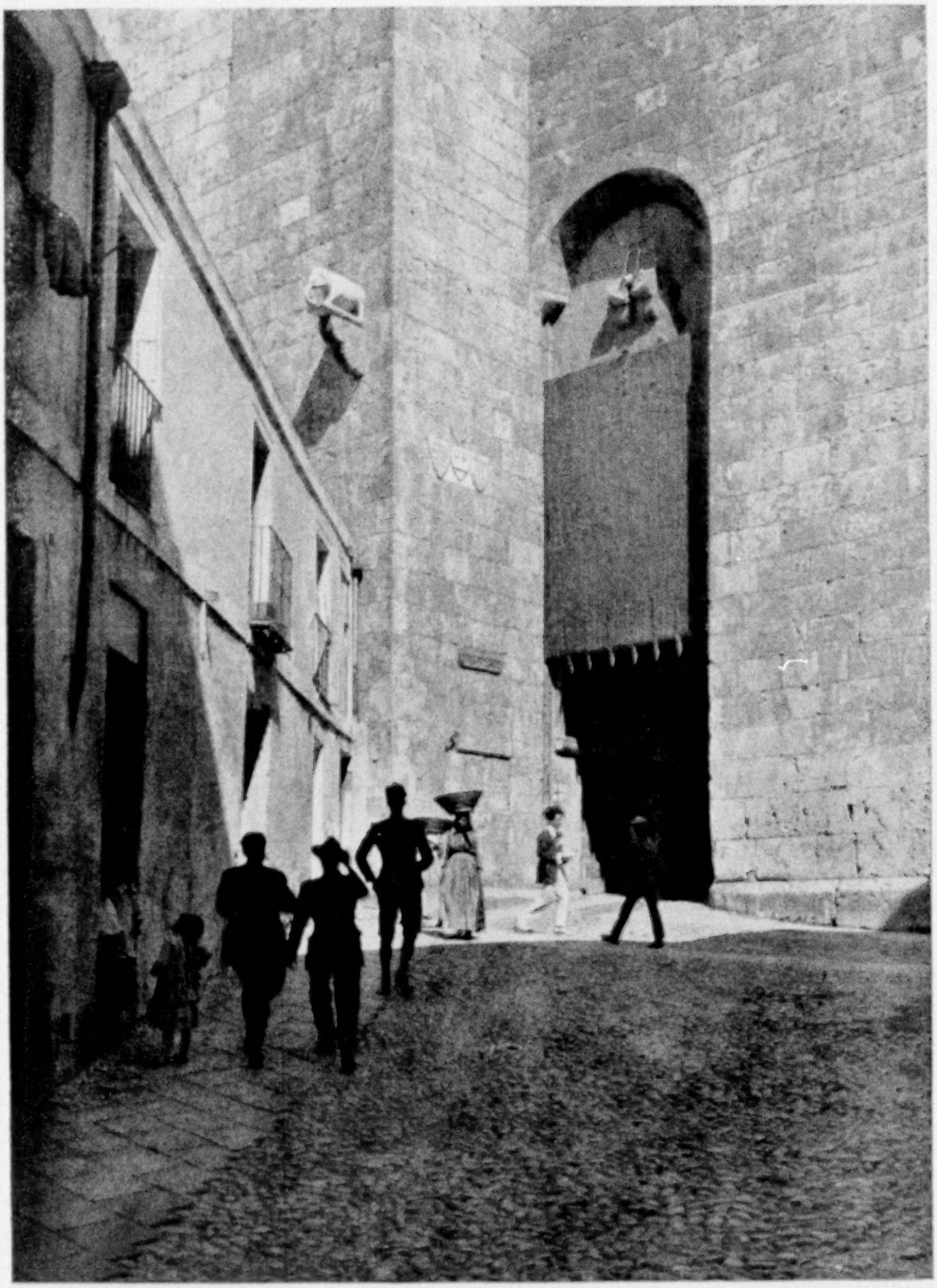
A SKETCH MAP SHOWING THE RELATION OF SARDINIA TO THE MAINLAND OF ITALY

With these exceptions, Sardinia, especially in its central part, is but a network of mountain ranges, an uninterrupted mass of round-topped, treeless hills, green and lovely in spring, yellowish brown and desolate in summer, although here and there, along the slopes of the Barbagia Mountains, patches of verdure are found, even in the hot season.

DEVELOPMENT DEPENDS ON FOUR RIVERS

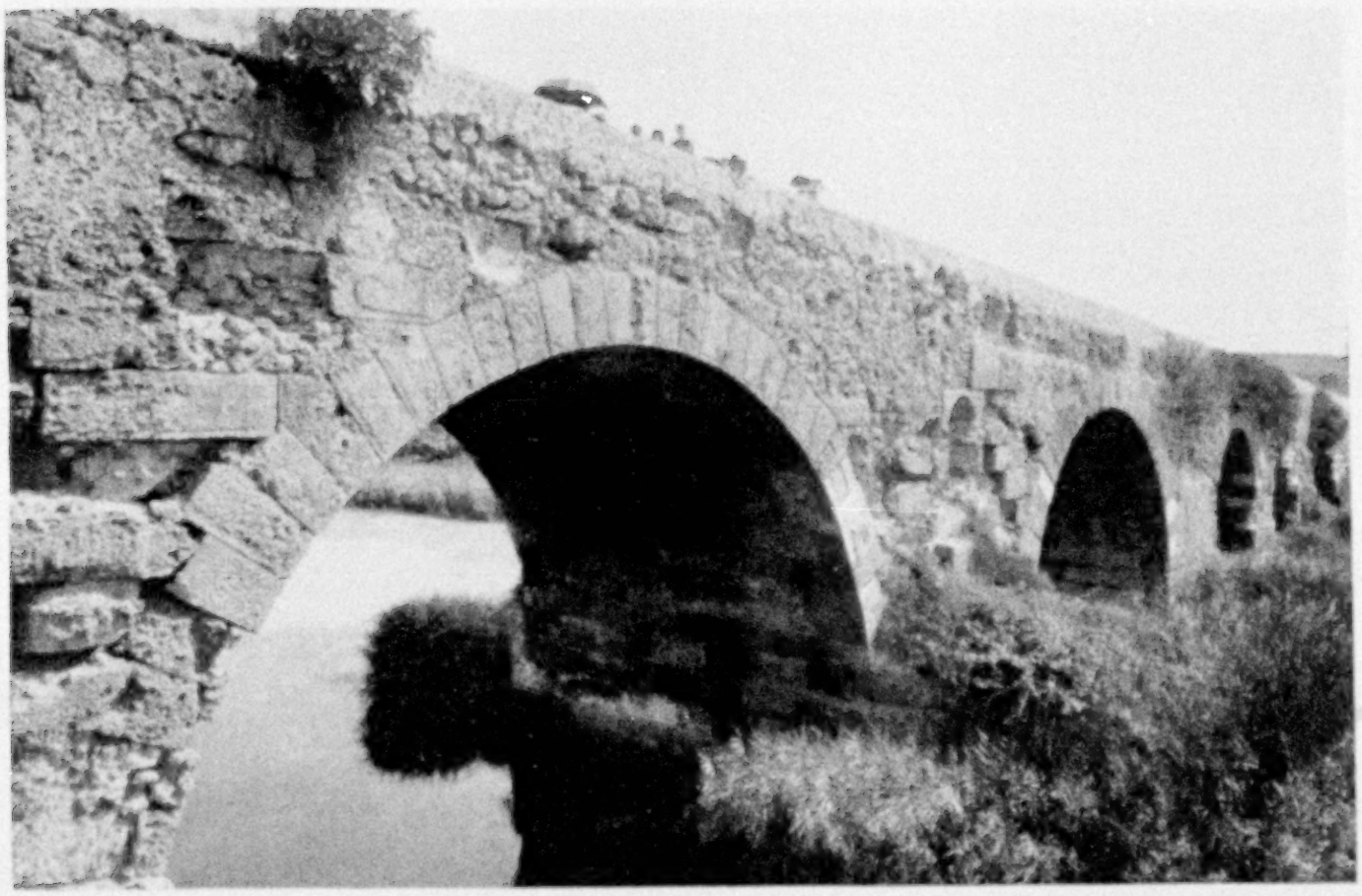
Naturally one would expect many rivers in an island of many mountains; but in Sardinia this is not the case. Owing to the scarcity of rain during several months of the year, Sardinian streams hardly deserve the name of rivers. In winter, after drenching rains, they become true torrents and are rapid and dangerous in their course; in summer they dry up almost completely, and a narrow rivulet of muddy water, which can easily be crossed at one step, is frequently all that remains of an impetuous winter torrent.

Sometimes a four-arched iron bridge spans a narrow ribbon of water between



THE TOWER OF THE ELEPHANT, ONE OF THE LANDMARKS OF CAGLIARI

This relic of medieval Pisan rule is in an excellent state of preservation, with its coat of arms, statuette of the elephant, and iron-bound portcullis (see text, page 74)



THE ANCIENT PONTE ROMANO OVER THE OTTAVA AT PORTO TORRES
Its seven arches of unequal span are constructed of huge blocks of stone.

stretches of flints which mark the course of a wet-season river.

The four main rivers deserve a special note, because on their regulation depends the welfare and prosperity of the whole island.

The Tirso has its source in the granite table-land of Budduso, in the upper part of the island, and after a course of 84 miles debouches at Oristano Bay, where in ancient times rose the Roman town of Tharros. The Flumendosa rises in the mountains of Barbagia and enters the Tyrrhenian Sea near Muravera, on Corallo Bay. The Coghinas, which has its source in the mountain ranges of the Marghine, in northwestern Sardinia, empties into the Asinara Gulf, and the Temo enters the sea near Bosa.

SARDINIA EXPECTS TO HAVE LARGEST ARTIFICIAL LAKE IN EUROPE

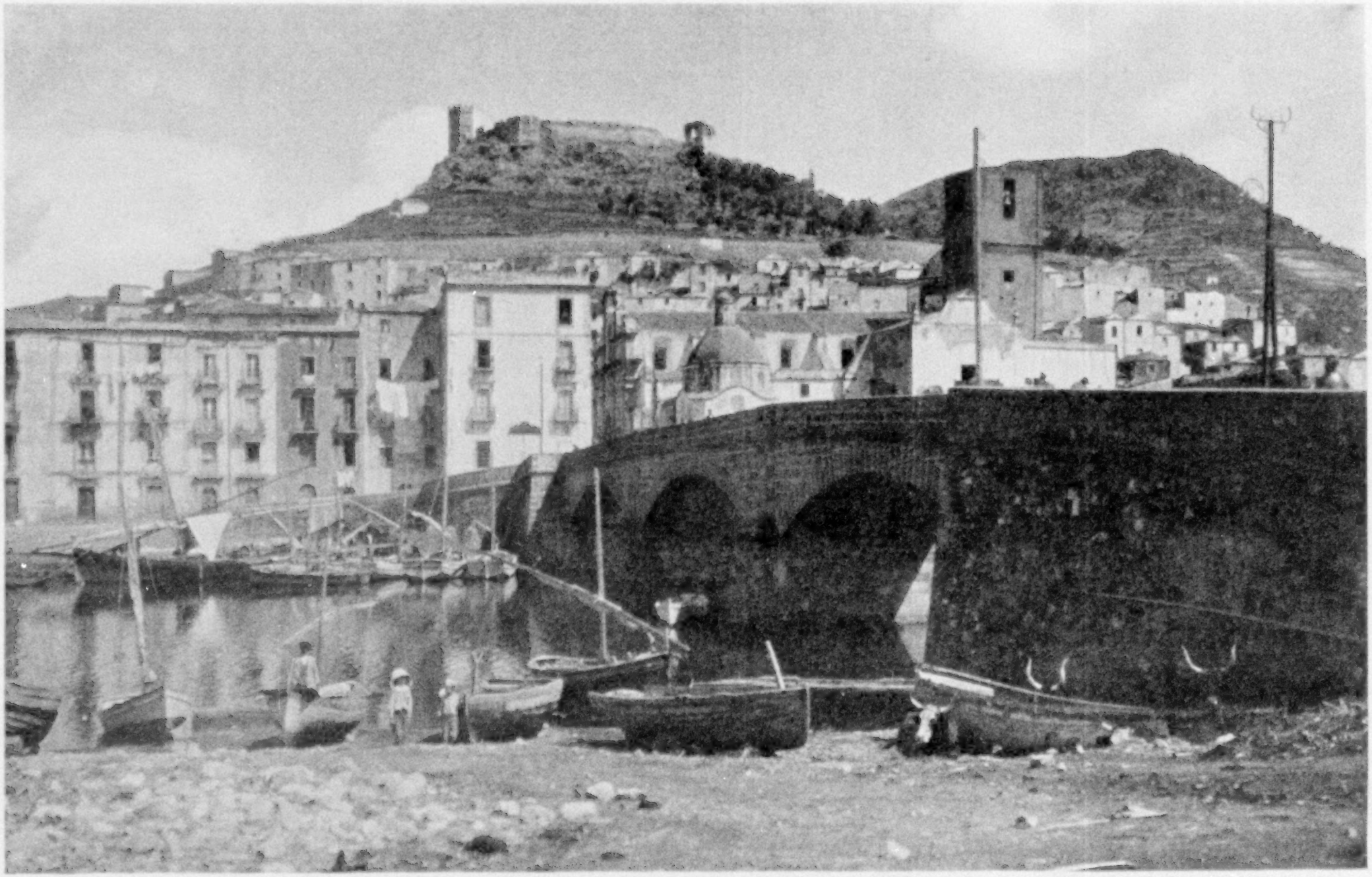
In the central part of the island an imposing dam, 235 feet high and 250 feet thick, has been constructed. It is designed to retain and collect the waters of the Tirso in such a way as to form an artificial lake about 12 miles long and 40 miles in circumference, which will be the largest of its kind in Europe. Electric turbines will supply current throughout a large part of the island.

A special feature of the construction is that the turbines and the electric machinery are placed in the very body of the dam. The overflow is to be collected in a large reservoir near Fordongianus, and by means of three canals the water of the Tirso will be directed to flow through the plains which surround Oristano, watering an extensive tract of cultivable ground, to the great advantage of agriculture and improvement of health conditions. The turbines are already at work and electric current is being provided at a cheap price, both for lighting and industrial purposes.

The scenic features of the valley where such imposing works are being carried out will be quite changed, and in summer the plain near Oristano will not have the same appearance as now. When the artificial lake is formed, the rocky, barren flanks of the hills, now covered with wild shrubs, will be replaced by large tracts of cultivated, well-watered ground. Factories

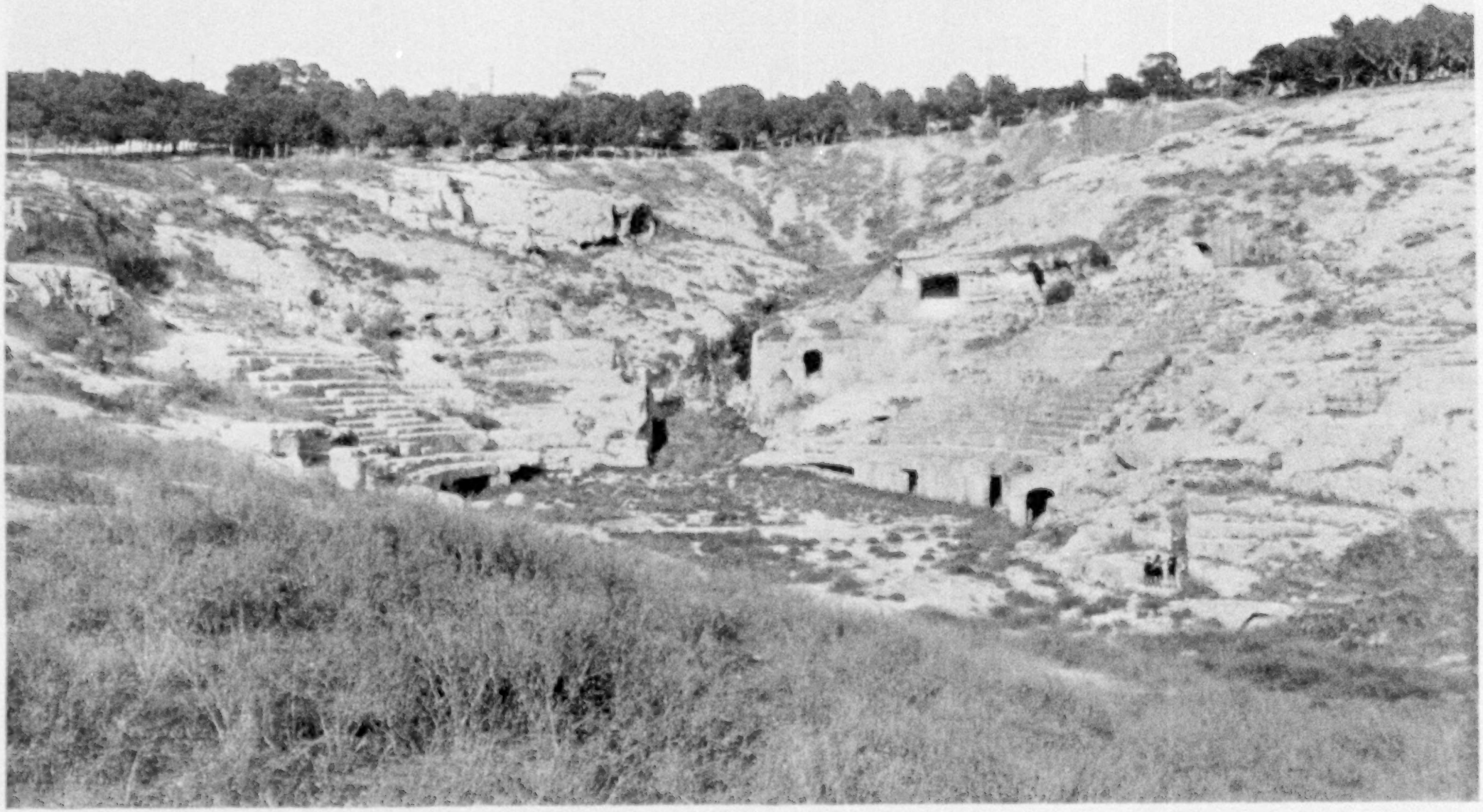
A PANORAMA OF BOSA FROM THE RUINS OF THE ELEVENTH CENTURY CASTLE OF SARRAVALLE

The view includes the new city and the ancient canal dug by the adventurers from Carthage who first settled here. The seaport is situated on the river Temo a mile and a quarter from its mouth.



FISHING BOATS COME UP THE OLD CHANNEL DUG FROM BOSA TO THE SEA

The old castle of Malaspina looks down on the town from the summit of an adjacent hill (see also illustration on opposite page).



THE ROMAN AMPHITHEATER ON THE OUTSKIRTS OF CAGLIARI

This theater is sometimes used to stage Greek plays, the audience sitting, as did the Romans, on the rock-hewn seats and on stones scattered over the hillside. Under the seats are passageways for the actors (see text, page 17).

will rise where now there are only a few miserable huts, inhabited by poor shepherds who guide their flocks in search of scanty food.

The Flumendosa, though it has a shorter course than the Tirso, is certainly more impressive, both for the volume of the water it carries and the picturesqueness of its banks. It flows between barren hills, but during the summer its banks are covered with oleander shrubs. The landscape assumes a lovely appearance, and the pink flowers of the oleander mingle with the brown hillsides, while the river, which even in the hottest months retains a considerable volume of water, winds here and there, or spreads wide its flood, according to the conformation of its bed.

The landscape in this part of the island is typically Sardinian. Villages are situated far apart. Occasionally a flock of white sheep studs the side of a hill, where a small stone inclosure around a cone-shaped, thatch-roofed hut indicates the existence of a fold. The highroad, in splendid condition for motoring, in spite of innumerable curves and hairpin turns, runs along the side of overhanging hills, barren and white.

Another stream which enters the sea on the western coast is the Temo, on whose banks the town of Bosa is built. It looks more like a river than any other watercourse in Sardinia. Boats with widespread sails can ascend the current for almost two miles, and near Bosa the river flows amid the most beautiful orchards and gardens in Sardinia; but its course is so short and the roadstead into which it empties so open that the Temo has no commercial importance.

The same firm which has planned and carried out the construction of the Tirso dam has been commissioned to build similar reservoirs for the Coghinas, Flumendosa, and Temo rivers.

SEA POOLS A FEATURE OF THE SOUTHERN PROVINCE

Along the Sardinian coast, chiefly in the southern province, are considerable sheets of water, popularly known as *stagni di mare* (sea pools). Cagliari is surrounded by such pools, which, being in direct communication with the sea and retaining in their water a considerable amount of salt, are not dangerous to health, as the larvæ of mosquitoes cannot live in them.

The lake of Santa Gilla near Cagliari forms a striking feature of the landscape and is the haunt of innumerable wild ducks and other waterfowl. Especially is it a favorite spot for the flamingoes that emigrate from Africa to spend the hottest months of the year in the neighborhood of Cagliari.

In August, a little after sunset, those strange birds may be seen flying high above the city, in their daily journey from the west pool to the east. Seen from below, they look like so many crosses, with their outstretched necks, trailing legs, and short wings.

THE MAIN ISLAND SURROUNDED BY ISLETS

The stern Sardinian coast, with its spurs and cliffs, presents an abrupt eastern wall with few indentations. On the western side, the shore has a gentle slope as far as the Gulf of Alghero and Porto Conte, the latter, however, being surrounded by high cliffs which form Cape Caccia, site of the famous Neptune Grotto. This is well worth visiting, but is difficult to enter, as its mouth is situated at sea-level and the slightest breeze piles waves against the entrance.

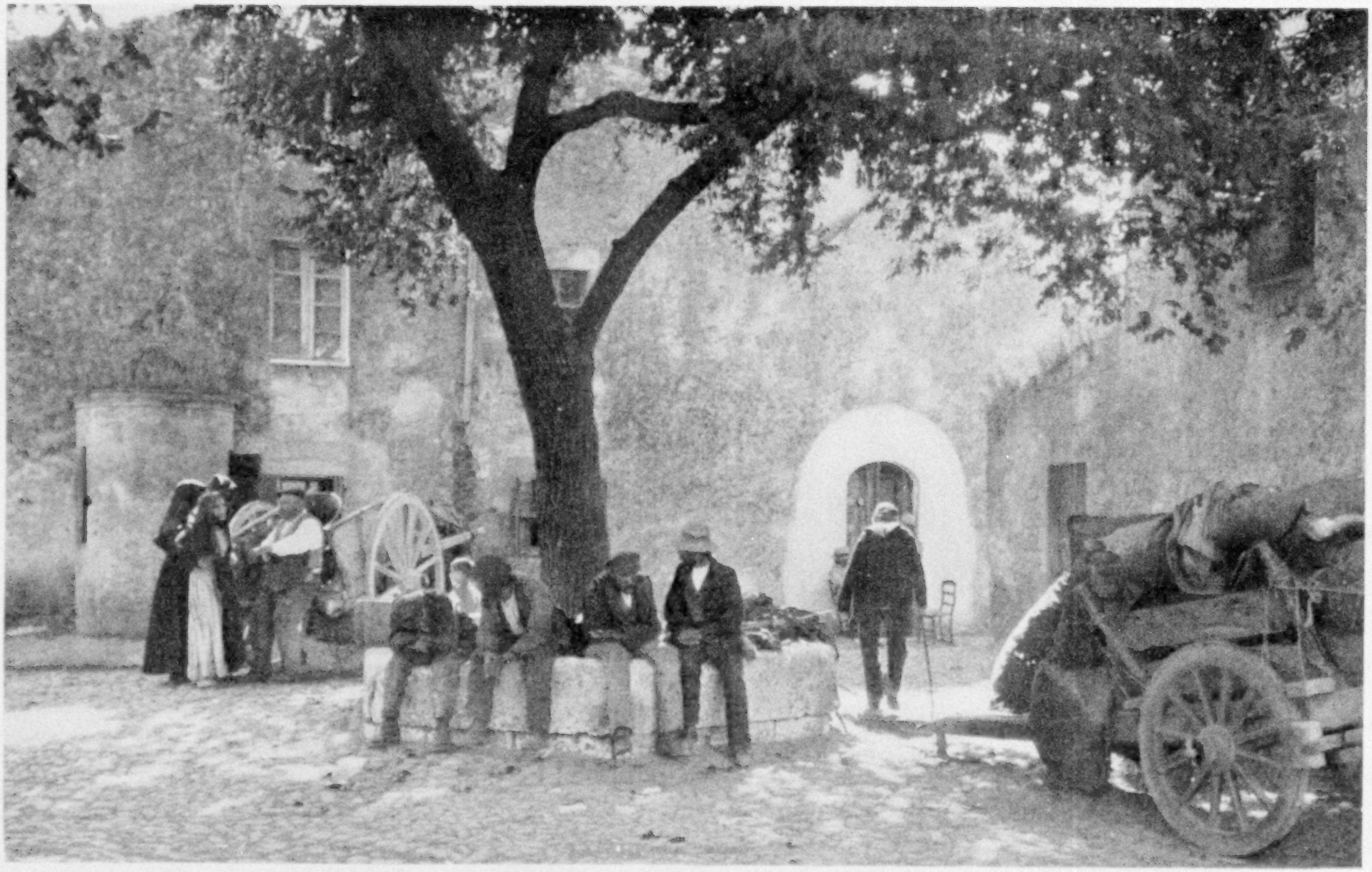
The main island is surrounded by small isles, of which Sant' Antioco is the largest. A narrow tongue of land, with the aid of a short bridge built by the Romans, connects it with the mainland. Next comes the island of San Pietro, on which is Carloforte, center for the most important tunny fisheries in Sardinia.

Off the northeast corner there is a group of small islands, the most important being La Maddalena and Caprera. The latter is justly called the Sacred Island. Here lived and died the great Italian patriot Garibaldi, hero of two hemispheres. Many other unimportant islets are scattered around the Sardinian coast.

Sardinia is rich in prehistoric remains. No part of the island is entirely devoid of those quaint old monuments, which have defied time and weather and are still standing as evidences of an old civilization and a demonstration that the first Sardinians could not have been mere savages.

THE SOUTHERN SIDE OF THE PORT OF ALGHERO

After its evacuation by the Catalonians this city flourished under the rule of the Pisans, who fortified it with a wall and many watch towers, some of which are visible to-day.



A LAZY SUMMER MORNING IN THE PIAZZA AT OSILO

This is the fruit market whenever there is any to sell, but it is always the loafing place for peasants as well as for the people of the village.

THE TOWN CRIER, OR "BANDITTORE," MAKING AN ANNOUNCEMENT IN A MOUNTAIN VILLAGE

Between blasts of his little brass horn he is telling the assembled crowd that fine watermelons may be bought at the first house south of the church.

XUM

A SUNDAY MORNING GATHERING OF PEASANTS IN OLIENA

The men enjoy card games during the afternoon and all join in the dance held in the principal piazza after dark.

WHEN THE GRAPES ARE RIPE IN THE CAMPIDANO

The women and children help to unload the heavy oxcarts when they come to the large farm sheds from the vineyards. The grapes are pressed in a small hand press, then stored for a short time in large hogsheads before the wine-making process is continued.

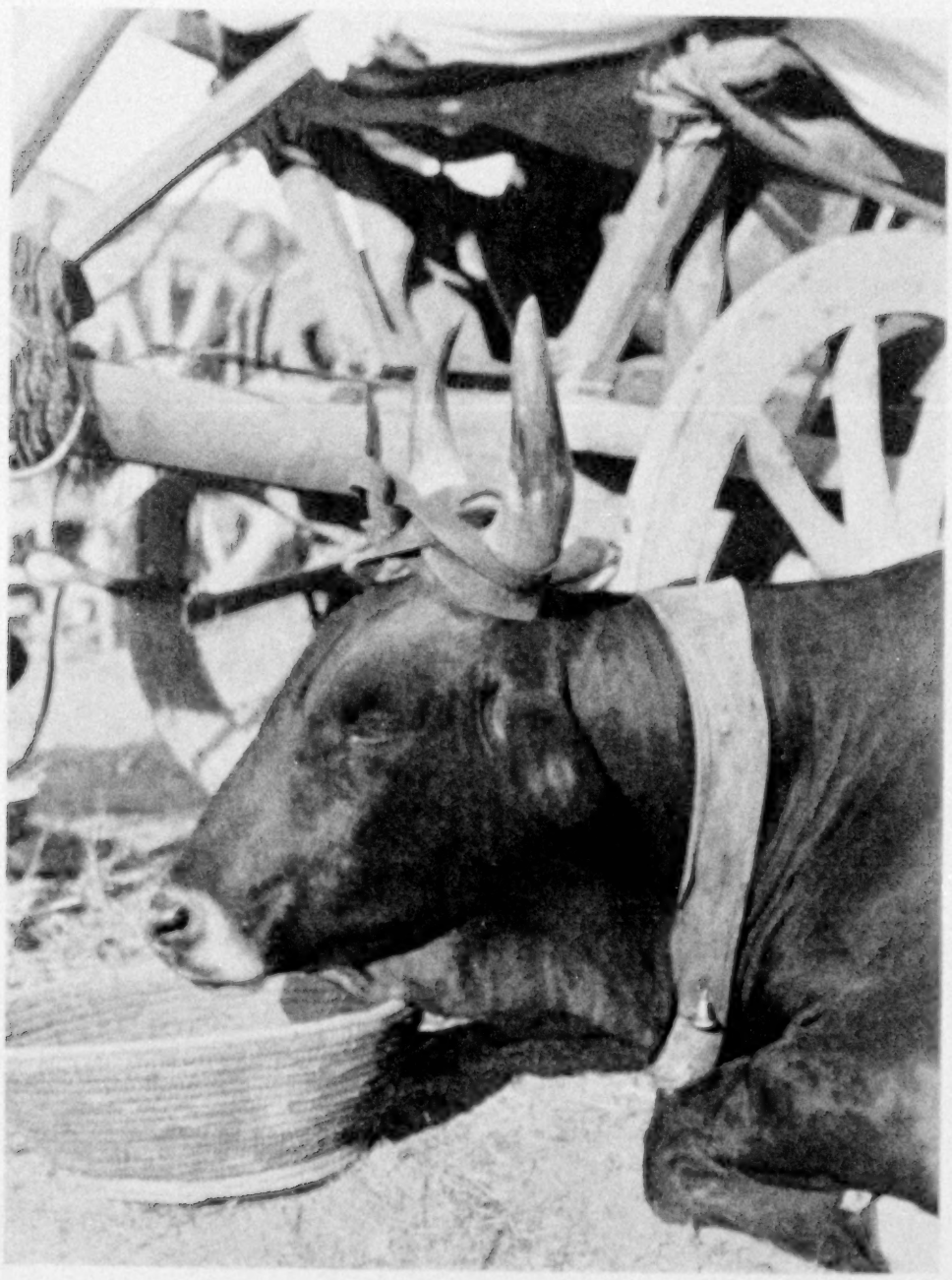
SNAILS FOR SALE

There are many varieties of small snails offered in the market place of Sassari. The Sardinians, like the French, prize them as a delicacy.

The traveler has always before his eyes these relics of the earliest ages, over which the cloudy wings of time have spread their shadow. These *nuraghi* are unmortared megalithic constructions shaped like truncated cones. After much controversy, archeologists have at last agreed that they probably served as fortresses, watch-towers, and even habitations for the tribal chiefs* (see page 56).

Many of these prehistoric structures, of which more than 3,000 are scattered throughout the island, are in an excellent state of preservation.

Nor should the visitor fail to see such other ancient ruins, dating from the bronze age, as the *domus de gianas* (witches' houses) and *sepolturas de gigantes* (giants' sepulchers), which are tombs excavated in the natural rock or temples to ancient deities.



RESTING AFTER A LONG JOURNEY

On the Campidano the oxen are given broad neck bands of rawhide, with a brass bell and sometimes a tassel of colored wool to wear when they draw the heavy cart, gaily bedecked with the family's best tablecloth, to the fête.

Sardinia spreads wide its history book at the page which records man's earliest existence. Treatises on Sardinian archeology are numerous and valuable, and whoever wishes to do so may study the subject thoroughly.

ANCIENT ROME HAS LEFT HER INDELIBLE IMPRESS

The Roman occupation left interesting remains. Both in the Northern and the Southern Province there are relics of bridges, temples, and aqueducts. Cagliari can boast an amphitheater almost entirely excavated in the natural rock, where steps, corridors, passages, and dens for wild beasts are still to be seen (see page 10). Called by the Romans Carales, this was in ancient times, as it is to-day, the principal town in the island (see page 74).

Of such old Roman towns as Nora, Sulci, Olbia, and Tharros, all situated on the coast, only a few remains can now be traced, where solitude and silence reign. It is sad to wander among those relics of piers, temples, houses, and paved roads, so busy with life when Rome was the mistress of the world.

* See "Little-Known Sardinia," by Helen Dunstan Wright, in the NATIONAL GEOGRAPHIC MAGAZINE for August, 1916.

A GROUP OF PEASANTS IN CAMP DURING THE FESTIVAL OF SANTA GRECA

Many families from the Campidano, north of Cagliari, come with cooking utensils and musical instruments and camp out for the duration of the festival (see text, page 56).

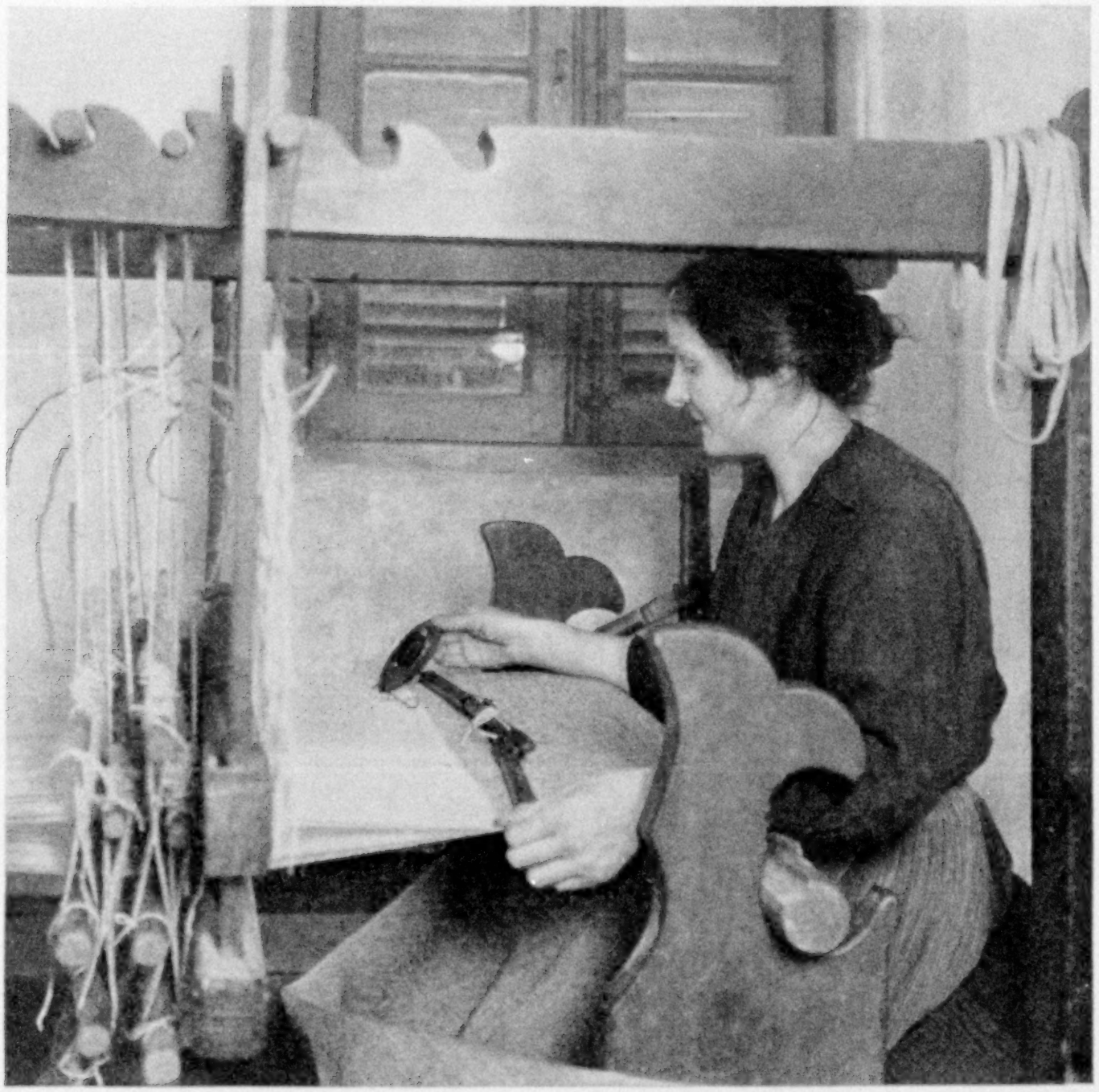
XUM

A SARDINIAN PEASANT DANCE HELD IN A KITCHEN

Sometimes there is music from guitar or accordion, but more often the solemn dancers rock slowly back and forth in time with the wordless chant sung by one who is familiar with ancient customs and legends.

PREPARING THE EVENING MEAL

In many of the poverty-stricken homes of the mountain villages it is the grandmother who fans the blaze in the fireplace to cook the family's supper, usually one dish consisting of a mixture of vegetables.



AN ANCIENT HOMEMADE LOOM IN A PEASANT COTTAGE

The women of Sardinia are experts at weaving, an art handed down from mother to daughter for generations. The cloth is usually of pure wool from the native sheep and the capacity of the loom is 8 to 11 yards a day (see text, page 55).

To give an account of the medieval history of Sardinia, however short, would be a hard and useless task. The Sardinians themselves, incredible as it may seem, are as ignorant of their own history as any foreigner who comes to visit the island.

It is, however, convenient to convey a general idea of Sardinian history, as many existing conditions are explained by incidents in the past.

Such medieval monuments as Sardinia possesses are in complete ruin. Of the castles only a few moldering walls remain; so that any investigation concerning their shape, the disposition of their halls, or the splendor of their stately rooms is almost impossible. A ruin, a name, a legendary history of doubtful accuracy—these are all that remain of the castles which once held the summits of the Sardinian hills.

The age of Pisan domination was not a happy one for Sardinia, for never as in that period were the people so imposed upon and taxed; nevertheless, the island is indebted to that city for its art. Many Pisan churches of exquisite Tuscan architecture are scattered throughout the island, but as they formed a part of monasteries

A HOMEMADE FLOUR MILL IN A SARDINIAN KITCHEN

The rock is the black lava of which the prehistoric *nuraghi* are constructed (see page 17). The mill is of the same model as those unearthed at Pompeii and Herculaneum (see text, page 30). The entire process of cleaning and grinding the wheat, sifting the flour, and baking the coarse unleavened bread is done in the home.

PREPARING BREAD FOR THE OVEN

The dough for the large, thin, circular pieces of bread known as "carta di musica" is brought to the rolling-board in large balls in a basket. On account of the swarms of flies found everywhere, the loaves are wrapped in a long piece of cloth, then carried in a tray on the head to the nearest oven for baking (see text, pages 52, 53, and 54).

KNEADING THE DOUGH

In some Sardinian homes the task of bread-making is confined to one day each week. The dough for the week's supply is prepared in the morning and baked in the afternoon. The loaves are hard and dry at the end of the week and are often hacked to bits with a big knife.

and convents, they were built in spots remote from the main roads, so that those best preserved cannot be visited without some trouble.

TWO SARDINIAN CASTLES FIGURE IN DANTE'S EPIC

Two castles built in the Middle Ages are worthy of mention, both for their historical importance and because the names of their owners are recorded in Dante's "Divine Comedy."

The first is the Castle of Goceano, known also as Castello di Burgos, a name taken from the village which lies at its foot (see Color Plate VI). It was built in 1127 by Gonario, one of the giudici of Logudoro, and there lived and died the unhappy Queen Adelasia of Torres, wife of Enzio, a natural son of Frederic II. This Sardinian queen also seems to have had some connection with that Michele Zanche whom Dante pictures in the depth of his Inferno, among the *barattieri* (cheats). The castle stands in a very picturesque position and commands a splendid view of the whole district known as the Goceano.

The other castle, situated near Iglesias, was called Aqua Fredda (cold water) and belonged to the powerful Pisan family of the Counts of Gherardesca, of whom Count Ugolino was one of the most important members. Those acquainted with the "Divine Comedy" will recall the celebrated canto of the Inferno where Dante gives a thrilling description of the death of Count Ugolino, doomed to die of hunger with his sons and nephews in the famous tower of Pisa.

Other castles, such as that of Malaspina, erected on the hill overhanging Bosa (see illustration on page 9), and Castle Doria, in the Northern Province, are in a state of utter neglect and desolation, though they still afford precious material for the historical and sensational novelist.

HISTORY OF THE MIDDLE AGES IS CLOUDY

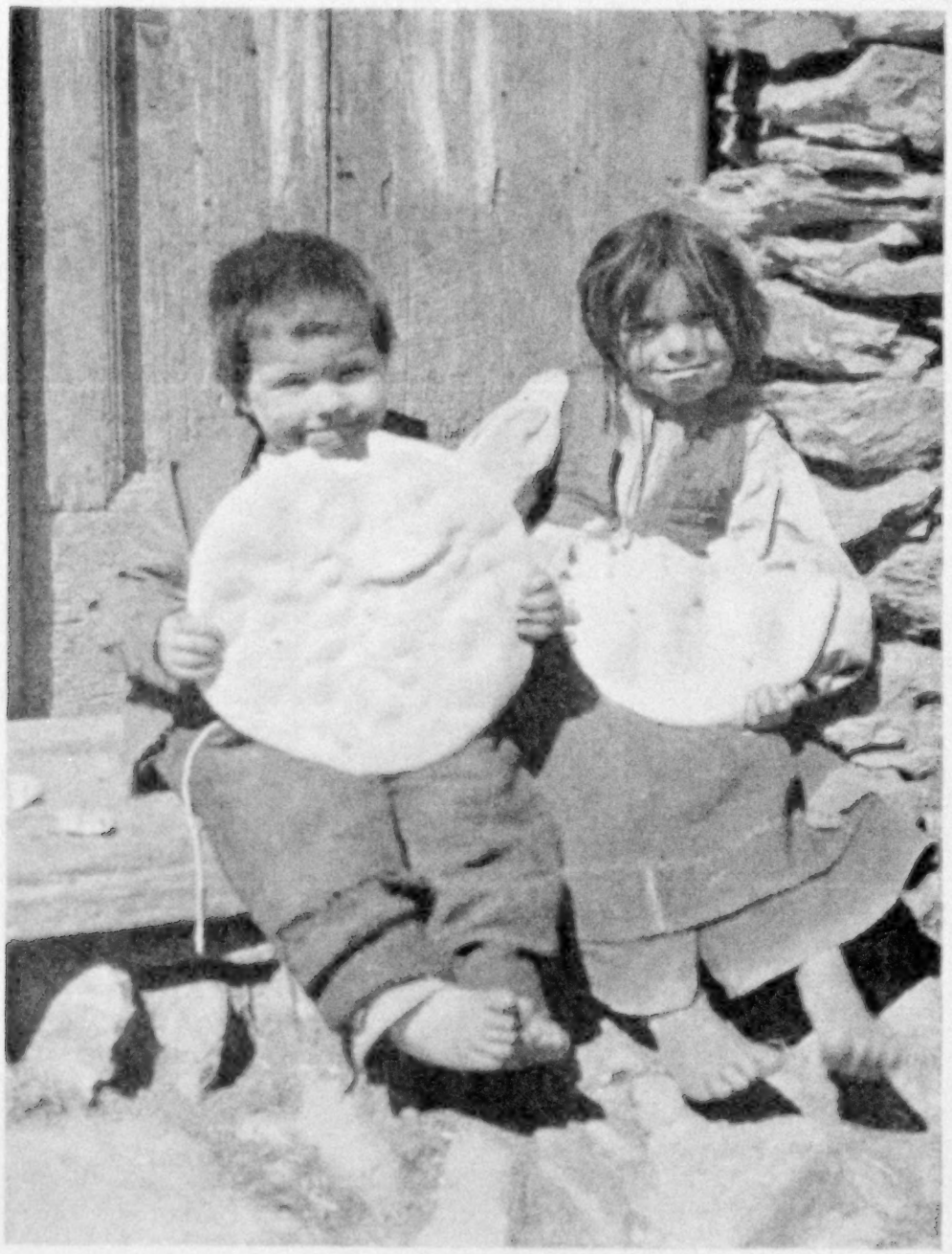
The Vandal invasions, the destruction of the monasteries, the neglect of ancient monuments, the lack of books and parchments, the many conflagrations which destroyed archive and sacristy, the mania of Sardinian peasants for digging and de-

stroying every ancient monument in the hope of finding hidden treasure—all make the history of Sardinia in the Middle Ages rather a cloudy one.

With the exception of Cagliari, whose Castello, with its preserved towers, entrance gates, ramparts, and fort, retains even in modern times many traces of medieval life, the towns and villages in Sardinia have scarcely a monument worth mentioning.

The history of Sardinia might be summed up in a few words. Invaders in every age came to pillage, to carry away treasure, and to impose heavy taxes on the inhabitants, who had to fight incessantly lest they be torn to pieces by these birds of prey.

Then Sardinia had to endure Spanish rule, which brought misfortune to the whole island. Even at present many prejudices, hypocrisies, and false standards for judging life are but lingering traces of those Spanish rulers who carried away all the treasure they could, but left as a sad souvenir of their sway the worst traits of their character.



EATING "PILLONCA" (SEE PAGE 54)

The unleavened native bread of Sardinia, which is about half an inch thick and is baked in large disks from 14 to 18 inches in diameter.

The Sardinian historian, Enrico Costa, has written a sonnet entitled "The History of Sardinia." It gives a better idea of Sardinian history than many textbooks on the subject. Here is a literal translation:

> Phœnicians and Greeks and Africans made her their prey and built the Nuraghi.
>
> Carthaginians tried to make the most of her and the Romans contented themselves to keep her in slavery.
>
> Then the Vandals, the Greek emperors, and the Moors worked her complete ruin.
>
> Under the Pisans she had monks and lords, but Genoa, the usurer, treated her as a vile servant.
>
> The Aragon dynasty gave her feuds, Spain kindled petty jealousies and asked for gold.
>
> Piedmont appreciated the trick and ruled over her between altar and gibbet.
>
> She was French and German, now she is Italian, but if God does not save her, no one knows what she will become.

The last verses of Mr. Costa's sonnet sound rather too bitter. The author wrote them several years ago, when the Italian Government almost completely neglected the island and when political offenders were sent to Sardinia as a penal colony.

GATHERING THE FRUIT OF THORN-PROTECTED CACTI

In the summer time women and children gather the sweet fruit of the "Indian fig" with long bamboo poles. An Italian syndicate proposes to erect a factory in southern Sardinia to make commercial alcohol from this fruit, which is rich in sugar (see text, page 30).

TEMPIO KEEPS ITS HOGS IN STONE HOUSES AND PENS ON A HILLSIDE BELOW THE TOWN

The pigs are taken to the country to forage during the day and brought home each night.

INTERIOR OF A FISHERMAN'S COTTAGE AT CASTEL SARDO

The oven and open fireplace are operated inside the one room. The cats, dogs, pigs, children, parents, and chickens all live together in unsanitary harmony.

Sardinia will always be Italian. Her sons have a strong attachment for their motherland, and Italy in turn owes much to the Sardinians for what they did during the World War. No soldiers proved more faithful and brave.

In this connection, it is appropriate to record that Sardinia will never forget what the American Red Cross has done for her children. This great organization has taught us to train our young people as Americans train their own.

VARIETY IN MANNERS AND COSTUMES

In Sardinia, which is so small in comparison with the countries by which it is surrounded, an intelligent visitor is at once impressed by the variety of scenery within a limited field. He notes, too, a difference in manners and habits between the inhabitants of neighboring districts and his ears soon detect the different dialects spoken in the villages through which he passes. The infinite variety of manners, speech, and costumes enhances the pleasure of his tour.

In reply to a letter from the Italian poet D'Annunzio, asking for some colloquial expressions in Sardinian dialect which he wanted to put into the mouth of one of the characters of his comedy, "Più che l'Amore" (More Than Love), Enrico Costa replied:

"Your faithful Sardinian servant, who is very affectionate toward his master, begs leave to point out that it is erroneously believed by the people of continental Italy, and often by the islanders themselves, that Sardinia has but one aspect. It is not so. Sardinia may be divided into zones, and from zone to zone there is a great change of scenery, habits, customs, language, and expressions. Tell me, then, if you please, in what part of Sardinia you want your servant to be born?"

Five years later J. E. Crawford Flitch wrote, "Sardinia is as surprising in its physical as in its racial contrasts." He makes a comparison between the highlands of Nuoro, which he calls the Switzerland of Sardinia, and the low, marshy lands of Oristano, which suggest to him Holland; yet from one district to the other is but a few hours in what he calls "toy trains."

THE ENTIRE TOWN OF SENNORI, NEAR SASSARI, MAKES BASKETS FOR HOME USE AND FOR THE MARKET

The basketware of the community is of rather coarse construction; the interior is of wheat straw wrapped with rough palm leaves. The design is woven into the basket (see text, page 75)

One cannot too strongly stress the diversity within an island only 160 miles long and 70 miles broad. So, instead of giving a systematic description of Sardinia from north to south, or from east to west, it will be much better to treat separately such regions as present the greatest contrasts. It will be easy for any reader to trace them on a map (see page 4).

A BIT OF OLD SPAIN IS TRANSPLANTED IN SARDINIA

If one visits Alghero and has previously traveled in Catalonia, he is at once struck by the resemblance between this Sardinian town and various places in Spain. In fact, Alghero cannot be called a Sardinian town. It is a colony from ancient Catalonia, and has kept unchanged the character of its early Spanish settlers.

The very appearance of the streets, with their four-storied houses; the men, with their faces neatly shaven, who suggest some Spanish matador; the language, which is almost pure Catalonian — all make Alghero seem actually "foreign" to such a place, for example, as Villanova, with its gorgeously costumed women, situated only a few miles away.

Sassari, the capital of the Northern Province, is surrounded by olive groves whose stretches of gray-leaved trees are now and then broken by vast vineyards. The white limestone rocks are very soft and the country roads, incredibly dusty, have a whiteness which dazzles the eyes. The town itself is not so peculiar, but its inhabitants have a character which differs greatly from that of the other islanders. The Sassarese is talkative, gay, sociable, and hospitable, with a bit of humor tingeing every subject he discusses.

No writer, ancient or modern, has ever failed to speak of the Fountain of Rosello. It is curious to note how authors of different ages have invariably reported what was said about that modest monument by previous visitors; so that a legend has arisen about the extreme beauty of a fountain which possesses little.

In 1849 an English writer said: "Few cities can boast a handsomer fountain than Rosello." In 1885 another English writer printed the same words, and the quaint old monument, so modest in its dimensions and so plain in its ornaments, having nothing but historical interest, is favorably compared with the splendid fountains in which the Italian cities are so rich.

The legend is, however, so strongly rooted that not to speak of the fountain of Rosello when describing Sassari would be considered a serious fault (see p. 57).

Sassari may be called one of the foreign towns of the island, such as La Maddalena, Carloforte, and Alghero. It was a Pisan colony and the dialect spoken there still retains some Tuscan characteristics.

La Maddalena is a Corsican colony and life is conducted there in accordance with the customs and habits of the motherland. The language spoken is almost a pure Corsican dialect, mingled with some Genoese words; but the visitor must be extremely careful in judging racial characteristics, for in La Maddalena live many Italian families.

Carloforte, which has taken its name from King Charles Emanuel III, is a pure Genoese colony. The isle of San Pietro, on which the town is situated, was given to the inhabitants by King Charles when he ransomed them from slavery. In former days the people inhabited the isle of Tabarca, off the Tunisian coast, and through an incursion of pirates all its inhabitants were made slaves and sold at the slave market in Tunis. That small, clean, lovely town is making successful efforts to thrive and improve, but being a smaller island, unconnected with Sardinia, its isolation is doubled.

FAMOUS NOVELIST DEPICTS ONLY ONE PHASE OF SARDINIAN LIFE

The Sardinian novelist, Mrs. Crazia Deledda, has through her stories made the island known to Italians and to such other readers as have had the fortune to read them, but she has pictured only one phase of Sardinian life.

The description which she gives of that part of Sardinia where her heroes and heroines live is not inaccurate, but her works have had a deleterious influence on the estimate formed by people generally concerning the island. The part of Sardinia pictured in Mrs. Deledda's descriptions is a small region, which, however interesting and characteristic it may be, is extremely circumscribed.

On the green plains of the Campidano, which surround Cagliari like an ample lawn, are large villages which are sure to interest the tourist or artist in search of the picturesque.

ROADS ARE HEDGED WITH CACTI

The Campidano villages are approached by long, dusty, sunburnt roads, widespread between hedges of the prickly pear cactus, with its purplish edible fruits, so common on the Mediterranean shores. The fleshy stems bristling with spines, which in the southern variety are long and stiff, are so tightly interwoven that trespassing is quite impossible.

During August and September women are often seen near these hedges, gathering the ripe fruit, which is fed to pigs. They use a long reed, which has been split at the top so as to form a kind of funnel that serves to clutch the fruit, tear it away and throw it on the ground. When a certain number of pears are thus plucked, another woman with a broom brushes off the microscopic prickles, after which the fruit is put into a basket (see page 26).

Sometimes the plain extends monotonous and uninterrupted for miles and miles and the villages, whose houses are invariably built of sun-baked bricks, almost disappear amid brown furrowed fields.

The village streets are broad and sunny, but frequently in the very middle of the thoroughfare is a puddle of muddy water, which disappears only in the hottest months of the year. Now and then newly built houses with whitewashed walls and some pretensions to architecture, form a strong contrast to these long streets bounded by high, bare walls.

At short distances the flanking walls are interrupted by arched gateways, with large doors which have in the lower part two apertures, like those we often see in the lofty entrance doors of convents. This entrance is called in the Campidano dialect *su portali*.

These doorways constitute one of the characteristic features of a Campidano village, and the traveler is quick to notice them, as well as the almost complete absence of windows, which makes the street look solitary and gloomy.

In an open space, usually on the outskirts of a village, is the *noria*, on a circular stone platform, where a patient, blindfolded ass goes round and round, yoked to the wooden bar which turns the water wheel. Earthenware buckets are attached to a rope belt which revolves around its rim. The buckets, which go down into a cistern or well, overturn as soon as they reach the top of the device, pouring the water into a trough, whence it is led to a large reservoir to be used when the garden needs watering.

This device, so frequently found in Spain, is called by the Campidano villagers *su mulinu* (the mill).

There is something oriental in the disposition of the village houses, streets, and gardens. From behind the high walls which shut in the streets, one often sees the waving tops of luxuriant palms, which suggest enchanting gardens and hidden flower-beds. This suggestion of concealed beauty is strengthened if the passenger catches glimpses of the inside of the compound through the small door in the *portali* when it happens to be ajar.

THE "LOLLA" IS THE PRIDE OF THE CAMPIDANO HOUSEWIFE

On passing the threshold, one finds himself in an ample courtyard, which in most houses is divided into two parts. On the western side, where the sun shines nearly all day, is a kind of veranda, upon which open the doors of the various rooms of the house. The veranda is decked with most beautiful flowers, cultivated in earthen pots. In front of the veranda is usually a small garden, where oranges, palms, and a variety of fruit-bearing trees grow luxuriantly. This porch, or veranda, is called *sa lolla*.

The lolla, with the open space in front, is a modification of the Spanish *patio*, and the same name is used in the dialect of the Northern Province to indicate the open space before a country house. The lolla is the pride of every Campidano housewife, whose passion it is that everything shall be neat and beautiful.

In a small room is the millstone, for every household has its own gristmill, turned by a patient little ass which is blindfolded to prevent dizziness. The inclosure is so small that there is scarcely enough room for the maidservant to watch the industrious animal and inspire

Photograph by Clifton Adams

A VILLAGE BEAUTY AT THE FOOT OF THE BRUNCU SPINA

This gorgeous costume of Aritzo is mostly of red coarse-woven wool. The trimming is green and blue and yellow, with silver braid on the shoulder, and the rich headcloth or scarf is of green and gold silk. The round-bottom apron is distinctive of the Barbagia region. From Aritzo one can climb the highest peak of the Gennargentu Mountains, which commands a superb view of sea and mountainous land.

Photograph by Clifton Adams

© MEN OF THE DORGALI NEIGHBORHOOD ON THE EAST COAST OF SARDINIA

Their handsome costumes are set off by the rough *mastruca* of black lamb's wool with pockets of hand-tooled leather in artistic designs. The native costumes are slowly giving way to cheaper and less distinctive garments.

©

Photograph by Clifton Adams

MAKING FLOUR IN A SARDINIAN HOME

After the wheat has been ground in the donkey mill it is screened through sieves of cane splints into large palm-leaf baskets. Then it is passed through silk bolting-cloth sieves to obtain flour fine enough for the unleavened bread which is baked in mud ovens.

Photograph by Clifton Adams

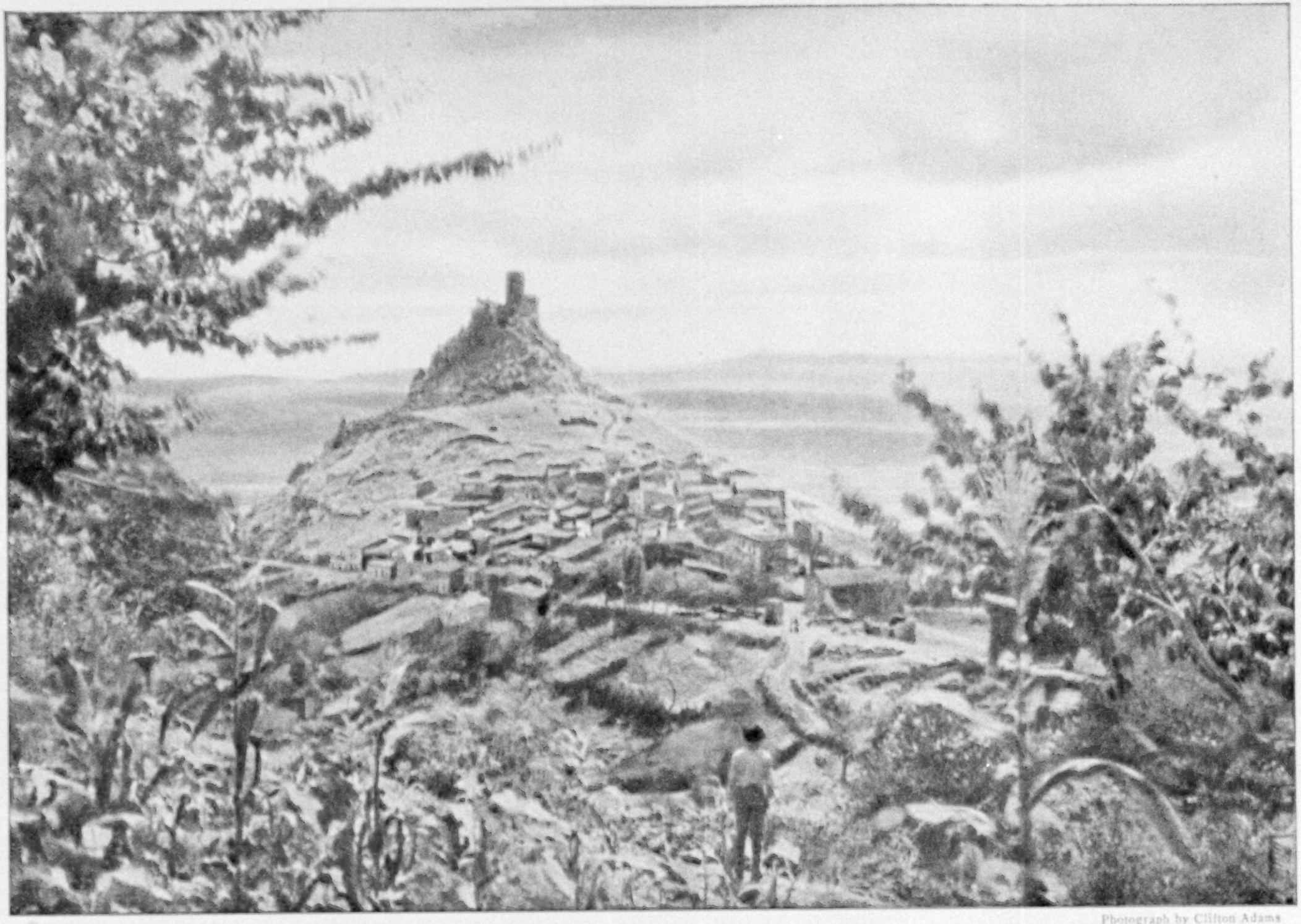
A YOUNG MERCHANT OF IGLESIAS

This little girl wears the every-day costume of her mining district. She has come to the vegetable market with her mother and grandmother, and is selecting some of the shiny purple *melanzane* to offer her customers.

Photograph by Clifton Adams

A SARDINIAN WOMAN OF DESULO

Some Sardinians believe there was, generations ago, an admixture of Arab blood in these people whose village stands on the western slope of the Monti del Gennargentu. They have beautiful clear eyes, finely cut features and a proud bearing.



Photograph by Clifton Adams

©

THE CASTLE OF BURGOS IN NORTHERN SARDINIA

The village of Burgos is in a picturesque spot below the ruins of a twelfth-century castle built on the granite peak of a detached hill overlooking the Tirso valley. The original Spanish colony consisted of only twenty-five families, but some of their customs have persisted to the present day.

Photograph by Clifton Adams

©

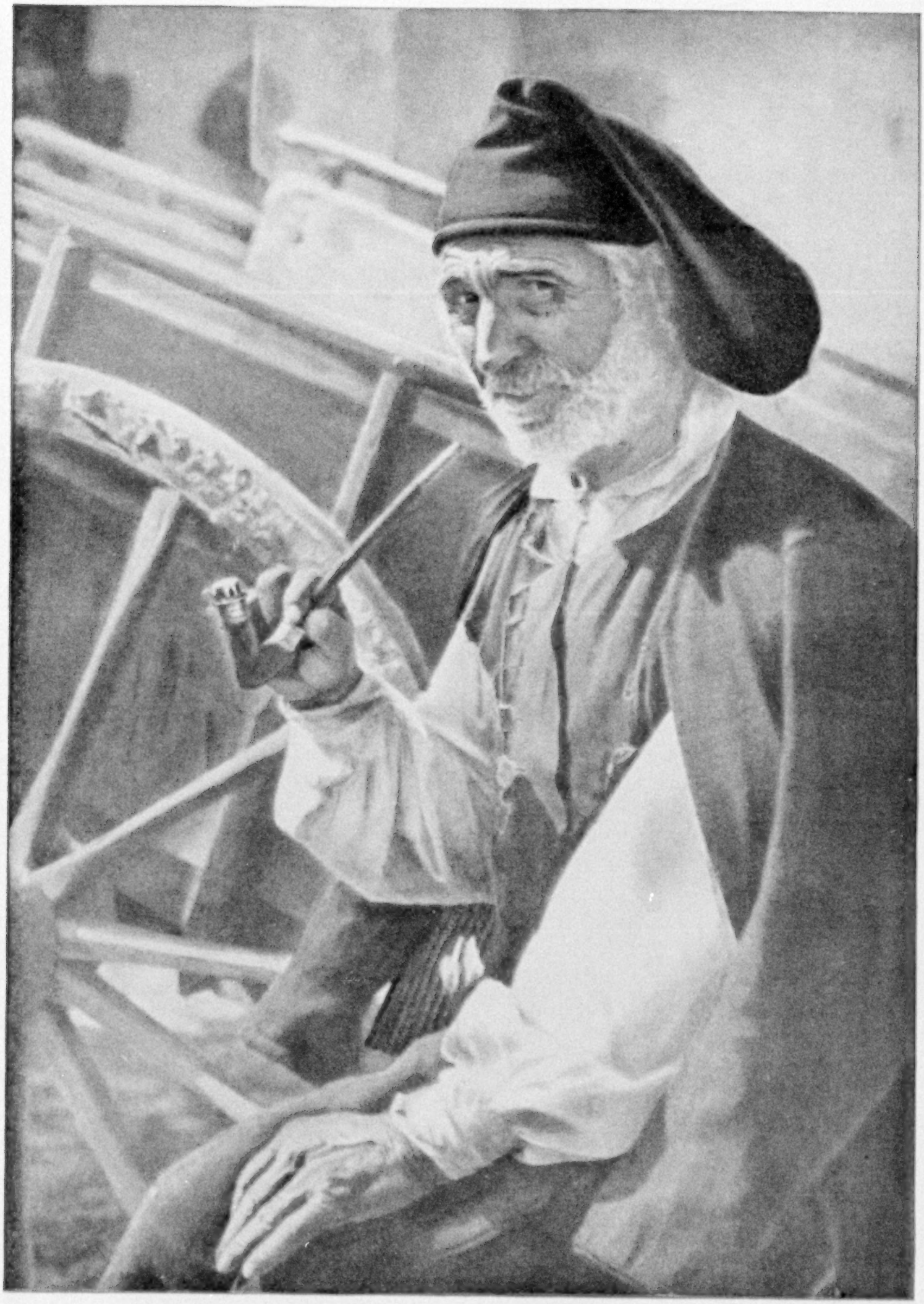
A VILLAGE HARDWARE STORE IN SARDINIA

The shops in the mountain villages of Sardinia display a variety of cheap household utensils. These are bought a piece at a time by the poorer peasants to grace the walls of their homes when not in use in the fireplaces.

Photograph by Clifton Adams

THE LEVEL GAZE OF A WOMAN OF DESULO

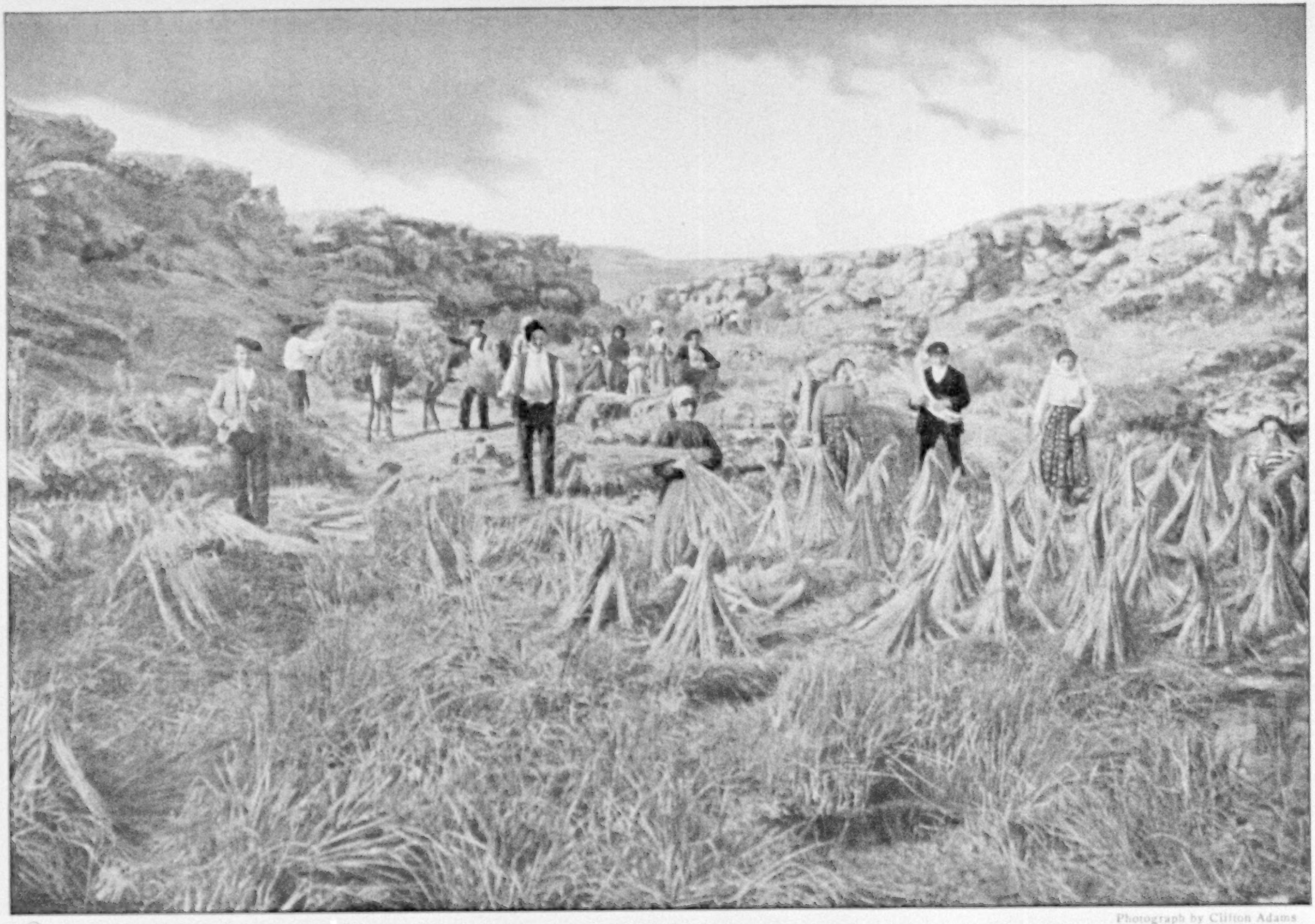
From childhood the women wear the distinctive costume of their village, and even the babies have the same bright colors. The peculiar tones of reds and blues in these costumes are typically Sardinian.



Photograph by Clifton Adams

AN OLD SARDINIAN IN THE ISLAND'S CHIEF MINING DISTRICT

In Iglesias, a town of 10,000 inhabitants and the center of the Iglesiente, where lead and zinc are mined, the men wear their *beretta*, or long cap, a little shorter than do those of some other regions. Almost the entire costume is of heavy wool, the vest being fastened with large square silver buttons of antique design.



Photograph by Clifton Adams

A MEDITERRANEAN PASTORAL SCENE

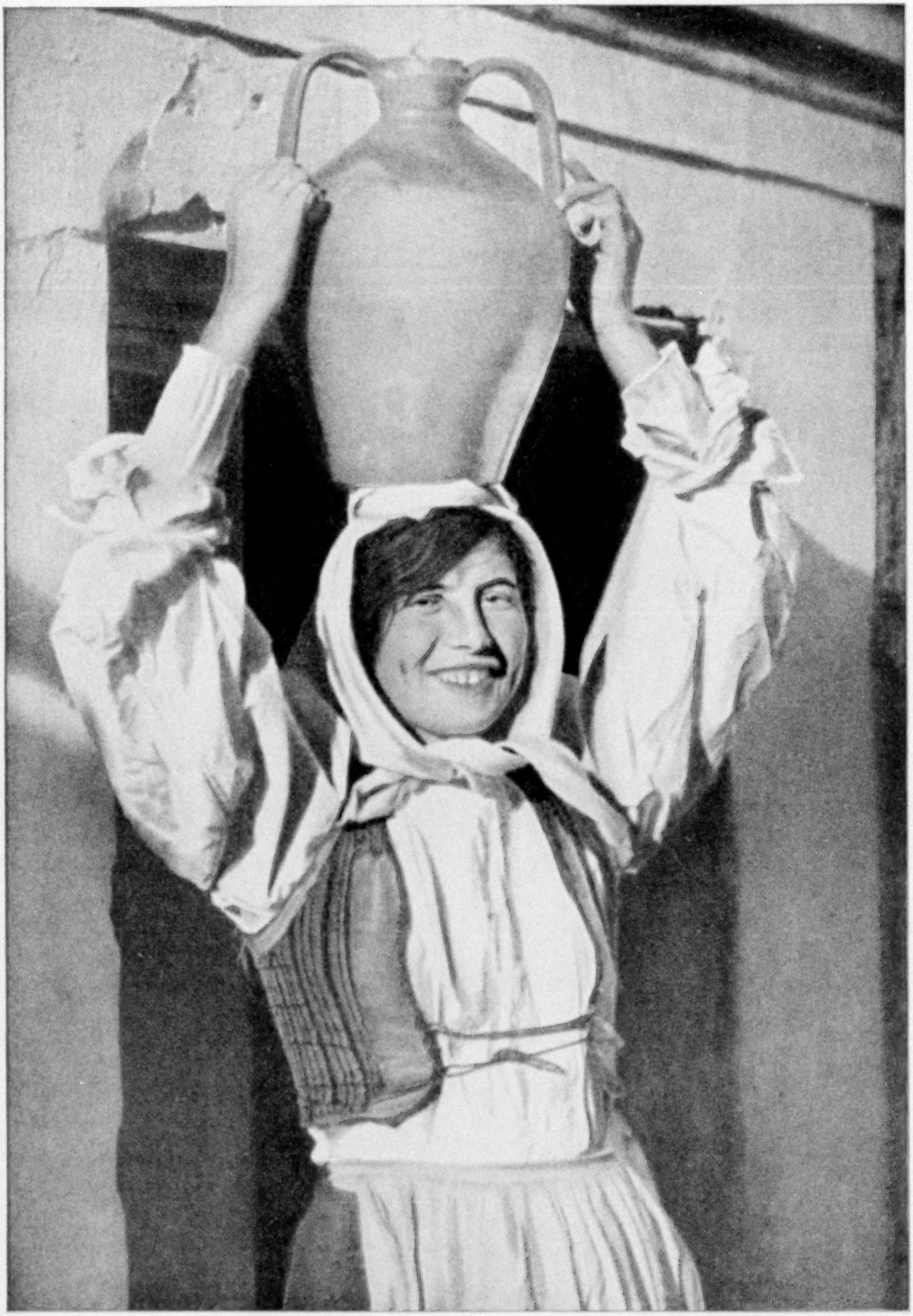
Sardinian peasants make excellent use of their natural resources. This flax straw lay in the stream for five days until the white fiber swelled. Now the bundles are being dried and taken on mule-back to the farmhouses, where the women will weave it into fine white linen.

©

Photograph by Clifton Adams

MONDAY MORNING AT THE MUNICIPAL WASHING PLACE IN BURGOS

Wash-day in the Sardinian mountains presents an animated scene with rows of peasant women in bright costumes working on each side of a long trough. In the background are black kettles over open fires to heat the water.



Photograph by Clifton Adams

BRINGING MOUNTAIN WATER FROM THE FOUNTAIN

This daughter of Aritzo is returning with a full water-jar balanced on the cloth which is coiled upon her head. Her features suggest Arab ancestry. Her eyes are those of her sisters of Mount Lebanon.

Photograph by Clifton Adams

TWO OLD CRONIES OF IGLESIAS

In spite of their somber costumes, relieved only by the glint of antique silver buttons, these two old city fathers, joking in the market place, resemble twin Punches relating their adventures with their respective Judies.

Photograph by Clifton Adams

THREE OF THE FAMOUS COSTUMES OF OSILO

On each side are the gala costumes worn on Sundays and fête days in Osilo. They are considered the most beautiful of northern Sardinia. The grandmother has on the dress which is ordinarily worn by old women throughout the island.

Photograph by Clifton Adams

A SARDINIAN GRANDFATHER

One knows it's summertime because he wears his lambskin *mastruca* with the hair inside as a protection against malaria. There is a bite to eat in the end of his *beretta*, the long Sardinian cap which is worn the year round. This genial farmer lives in Macomer, a junction point where trains from four directions meet and spend the night.

©

Photograph by Clifton Adams

PEASANTS OF THE CAMPIDANO AT THE FIESTA OF SANTA GRECA

The father has just bought a suckling pig at the butcher's little grass hut, and the family is pleased in the anticipation of the roast before the camp fire. This fiesta is held in Decimomannu, whence a branch railway runs to Iglesias and the west coast.

him with a short rod when he stops (see illustration, page 22).

The flour thus ground is screened through sieves made at home by the women of the household (see Color Plate III). This operation is often performed in the middle of the courtyard. The bran is stored to feed the fowls, which are invariably found either here and there in front of the lolla or perched upon the cart shaft, which they use as a roost.

The contrast between the lolla full of flowers, with every comfort of modern life, elegant in appearance, and lighted during the night by electric lamps, and the other part of the courtyard, with its rural aspect, is both striking and interesting.

The lollas of the Campidano are not always the fine verandas just described. In the houses of poor families the portico is primitive, with a battered, slovenly tiled roof, supported by rough wooden posts, which are sometimes replaced by pillars of masonry. Other lollas have no gardens in front; but always one finds flowers or a climbing plant, adding color to the wall of the house. Everywhere are evidences of the good housewife's efforts to beautify her lolla as best she can.

THE MOTOR CAR VERSUS THE OXCART

The courtyard of a Campidano home is always cluttered with quaint Sardinian carts, with their frames formed of long poles.

The oxcart is still to be found on all Sardinian roads, in strange contrast with the speedy motor car, to which the slow Sardinian vehicle is often a serious hindrance, for the cart is usually loaded with fagots piled to an incredible height and spread so wide that the road is completely blocked. It is often quite useless to sound the horn. No one hears. The driver of the cart sleeps and the oxen, too.

When, after a great amount of hallooing, sounding of the horn, and shouting, the cart moves slowly aside, the motor car is rudely brushed by the bristling ends of the fagots.

The roads of Sardinia, once deserted and silent, are now traversed by many motor busses. Nowadays every part of the island is easily reached in a public automobile, but the old-time cart is always there also. It moves slowly and takes days to reach a village, but now and then it avenges itself on its modern enemy, the automobile. The engine gets out of order, a spring is broken, or the magneto does not work and a ferocious sun shines over all the scene. Then the Sardinian cart takes in tow its dejected and humiliated enemy and the passengers gaze morosely at the scenery, knowing that the village is distant and that on country roads are neither inns nor hotels.

In the central regions of the island the cart is smaller and has wheels of solid wood. It is just such a vehicle as was used by the Romans twenty centuries ago (see page 55).

NO WINDOWS LOOK UPON THE STREET

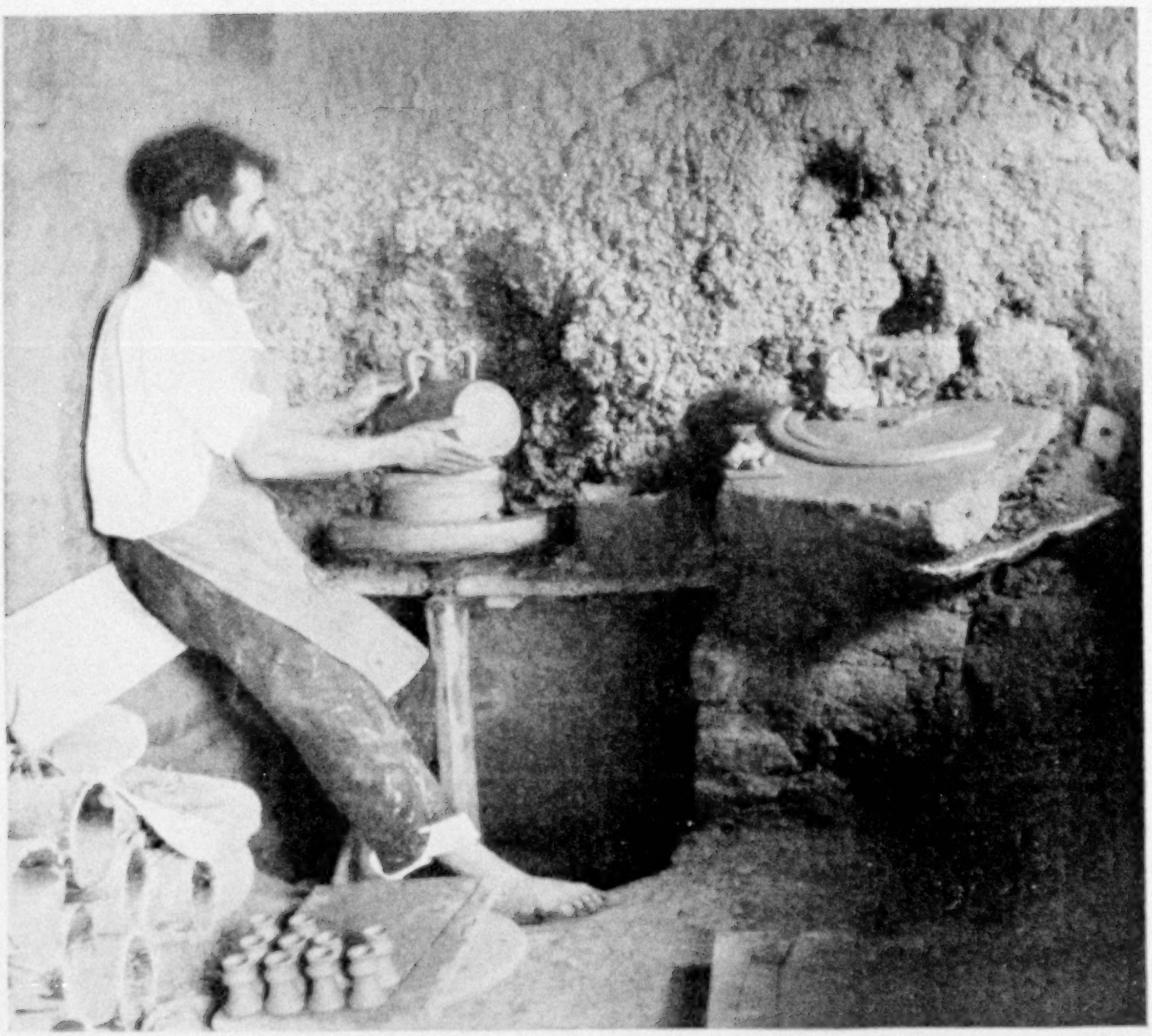
The house of the Campidano is almost always the one-storied building so common in Spanish countries. No windows look upon the street, a condition said to be due to the fact that in former days men were so jealous of their women that nobody would expose his wife or sister to the curious glances of strangers.

This reserve and all these efforts to conceal the business of the household are so common in Anglo-Saxon life that readers will not understand how it could be otherwise. Yet life in the southern part of Europe is so open to inspection that this characteristic of the villages of the Campidano deserves notice.

The heroines in Mrs. Deledda's works are rude types, all flesh and blood, with strong passions, often unchecked by education or religion. She describes the women of that small portion of the island which is called the Nuorese. In the Campidano nothing of the sort is to be found in the beautiful, quiet, open faces of the women, whose cares are all directed to bringing up a family—women who have in their eyes the reflection of the broad green plains of their beloved Campidano and whose bucolic souls are free from any dangerous passion.

In their lollas, full of sunshine and flowers, they superintend the household. Their men cultivate the fields and tend large tracts of vineyards, coming home at sunset. The large gate is opened wide to admit the cart loaded with casks of wine or bags of corn. Then the ample courtyard with its lolla is inclosed again and the happy domestic life continues in the sanctuary of the family.

XUM



A POTTER IN ORISTANO, WHERE VESSELS ARE MADE TO SUPPLY ALL SARDINIA

The wheel is turned with the bare foot. The potter is attaching a double handle to a drinking jug for field use.

A visit, however short, to the villages situated in the northern part of Sardinia and a hurried glance at a Campidano house are sufficient to reveal the great difference which exists between the northern and southern parts of the island.

SARDINIA PROVIDES MANY CHANGES OF SCENE IN SMALL SPACE

As soon as one quits the plain and ascends the first hills, the appearance of nature suddenly changes, and before reaching the highest summits of the Sardinian mountains, one has passed through so many diverse regions, has admired such variety of scene, has been charmed by so many different costumes, that he gets the impression of having made a very long journey.

Here is Gallura, with its granite peaks and cork trees, of which entire forests cover the mountain slopes, with villages overawed by rocks which seem about to tumble down on them at any moment. There is Aggius, with its long range of saw-tooth peaks; Tempio, with its houses made of granite, giving the town an appearance unique in Sardinia; Nuoro, which combines the comforts of modern civilization with the opportunity to inspect Sardinia's ancient customs.

Then the mountain landscapes, with their incredible contrast of colors! Rude valleys and lovely glens, orchards and gardens, and long tracts of *tancas* (inclosures), limited by fence walls in the northern regions and by cactus hedges in the south, all covered with asphodel and

PREPARING GOAT-MILK CHEESE

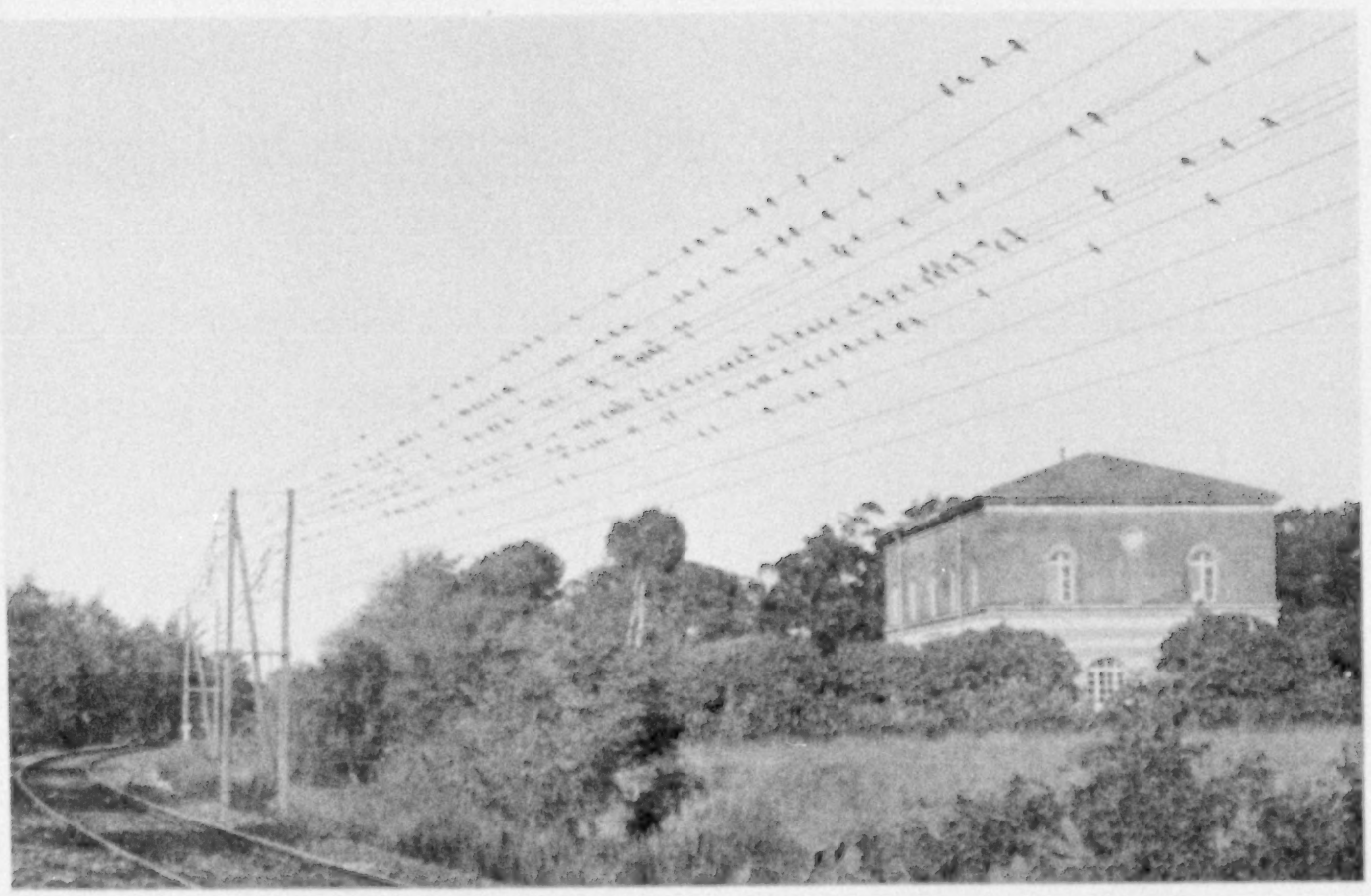
This cheese of Macomer has aged for five months, May to September, and after two or three more workings and the addition of olive oil and other ingredients, it will be ready for market in the winter.

INTERIOR OF A CHEESE SHOP

Here the cheese lover may find all varieties of Sardinian cheese. The smell is terrific and some of the wares on the shelves seem as if they might have attained a ripe old age before Columbus set out on his famous voyage.

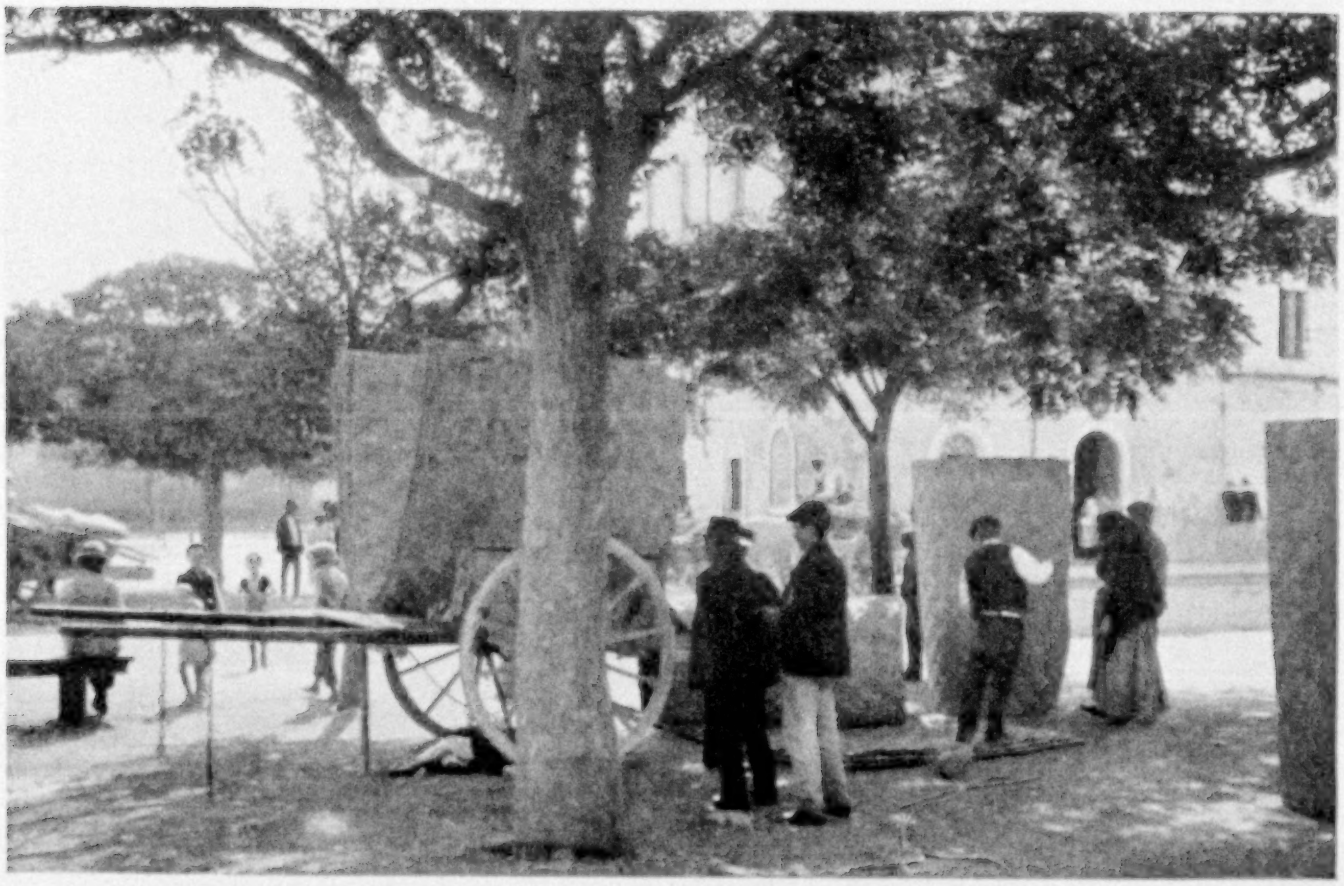
NOT GIGANTIC CHESTNUT BURRS, BUT HEDGEHOGS

These queer-looking little creatures, resembling balls of spines, live in holes in the ground in the mountains of Sardinia. They are sometimes kept as pets, but more often caught and sold as a delicacy in the markets.



ON THE LINE IN SARDINIA

Countless numbers of white-breasted swallows build their nests under the eaves and window ledges of the rock houses in the hill towns of the island. This flock of feathered speedsters is resting from a frolic in the sky.



TRANSPORTING BAMBOO MATS

These mats are made of the split poles of bamboo, which grows throughout the island in the low places. The peasants use the mats as coverings for carts, and in the home the cylinders serve as containers for storing grain.

SARDINIAN PEASANTS COMING INTO MACOMER

As the horse is trained to carry double, the women ride behind the men. The saddles are works of art in leather of various colors, ornamented with bone buttons and pockets. There is always a little foot-board on the side for the riders' feet.

ARITZO PEASANTS PLAYING THE SOUTHERN ITALY GAME OF "MORRA"

The players try to guess the number of fingers held out at the instant the hand is thrown forward. It is a favorite game in the drinking places and at fêtes, but is prohibited in some cities in Italy on account of the quarrels which result.

aromatic herbs, with flocks of goats pasturing on barren slopes.

Then there are Oliena, with the resplendent costumes of its inhabitants, and Fonni and Orgosolo and Desulo, the sad village lost in the solitude of woods, where dwell the most beautiful women in Sardinia, all dressed in red, a color which becomes a mass of flame when a procession of praying women is projected against the intense green of the chestnut woods.

In the district called Ogliastra are Lanusei, Arzana and Villagrande, villages which command extensive and magnificent views—a series of hills towering one beyond the other as far as the sea which washes the shore of Tortoli.

On the western side is the marshy district of Oristano, so powerful and important when Eleonora d'Arborea reigned, and near at hand Cabras, a village situated on the shore of a large pool, rich in fisheries, but unhealthy, where, in the summer months, malaria kills many of the inhabitants.

The villages in this part of Sardinia are almost all in miserable condition, for the delta of the Tirso is very unhealthy. But when the great irrigation works are finished its course will be better regulated, and it is believed that dread malaria will disappear.

There one sees pale girls, with fevered eyes as black as a raven's wing. They are barefooted and wear a colorless costume as somber as their countenances. Even the peculiar head-dress, which consists of a bright yellow kerchief tied under the chin, serves but to render the faces more sad and pale. What a difference between them and the pink-cheeked, blue-eyed, black-haired girls of the mountain district! Yet both are daughters of the same land.

BREAD-MAKING IS AN IMPORTANT OPERATION

One of the most important operations in Sardinian villages is making bread, for it is the chief food of the peasants.

GENIAL PEASANTS OF THE IGLESIAS DISTRICT

The old man and woman are going to the country, but stop to visit and joke with the two women who are taking grapes to the town market and the boy who has two cans of milk in the saddlebags on his donkey.

When they have to work in fields distant from their homes, they carry with them enough bread to last a week. Once a week every Sardinian housewife is busy making bread, and until late at night she is superintending the maidservants, who display the utmost activity in the performance of this domestic duty and are helped by every member of the family.

The oven must be heated, fagots heaped close at hand, and the fire carefully regulated, for as the quantity must last a week it must be well prepared in order that it may not become stale. From village to village the shape in which bread is fashioned varies considerably, and even its composition presents slight differences.

The kneading of the flour is conducted in the kitchen, often in large earthenware bowls, but it is finished on a table so short-legged that it compels the operator to kneel before it. The dough is rolled very thin. When baked and cooled, it becomes so hard and brittle that it cannot be broken without crumbling into innumerable bits (see pages 22, 23, and 24).

NO RUBBER HEELS IN SARDINIA

In the summer time the women and children of the Iglesias district go entirely barefoot or wear a rough plank of wood attached to the foot by a broad band of elastic across the toes. When walking in the streets of the villages, these sandals make a peculiar clacking noise on the stones.

This bread, having little yeast in it, lacks the flavor of the fermented variety, and has different names. In northern Sardinia it is called *carta di musica* (paper to write music on). In Barbagia, as at Desulo, Aritzo, and Sorgono, they call it *pillonca* (see page 25).

In autumn, flies are a great nuisance in Sardinia. They cover every inch of the kitchen tables and every particle of food. In the Campidano houses, whose main features are cleanliness and order, these winged pests have relentless enemies in the housewives, who employ all means to banish them; but in the villages situated in the center of the island, where cleanliness is not at all in accord with the beauty of the scenery, the tourist unaccustomed to such sights becomes terrified and swears never to taste such bread, remembering his lessons in hygiene. He wonders how the people live and thrive.

Fortunately, the fire which burns briskly inside the oven destroys the germs. The aromatic shrubs by which it is fed send out a smoke which has a distinctive odor. Instead of escaping through the chimney, it often oozes out between the weathered tiles of the roofs. The whole village reeks with smoke, which tells the visitor that it is baking day.

CURIOSITY IS A CHARACTERISTIC OF THE ISLANDERS

In the villages the people are rather inquisitive. They gather around the tourist and ply him with questions, seeking to know everything about his errands. At Desulo particularly the women are extremely curious. "Why did you come?" "Are you single or married?" "Where do you intend to go?" Such questions every visitor must answer if he desires peace.

If he carries a camera, the affair becomes even more serious. Children, as numerous as flies, collect around the unhappy man, and are so bold as to thrust themselves even between the legs of the camera tripod. Each wants his picture taken, and has uncanny ability in finding the very spot where he is not wanted.

HOW THE WORLD MOVES ON SAN PIETRO ISLAND

In some mountain districts of the interior and on the island of San Pietro the small cart with solid wood wheels is still in use, exactly as in the time of the Roman supremacy. The wheels are tight on the axle, which revolves underneath the cart in hardwood blocks (see p. 47).

When, at last, everything is ready and the shutter is about to be released, a boy who has succeeded thus far in escaping attention comes up and peeps into the lens. So goes another film!

Whoever carries a camera is often asked, "How much do you charge for a portrait?" It is rather difficult to make the people understand one's reasons for taking photographs. Pretty girls often object to posing before a camera, for fear that their likenesses will appear on a picture post-card—a thing which they abhor above everything else.

They are Eve's daughters, however. When asked to pose, they pretend to be shy, and giggle and cover their faces with aprons, and say that by no means will they allow any one to take their picture. But they do not stir; they do not run away. The ending is almost sure to be a happy one for the zealous photographer.

CLOTH MADE AT HOME FOR PEASANT COSTUMES

In the mountain districts in the heart of Sardinia and in some of the northern villages—Osilo, for instance—the cloth of which the peasant costumes are made is woven at home. The spinning is done by women whose parchment skin, sunken eyes, and protuberant cheek-bones suggest a grotesque mask.

The warp is stretched on the ground in open spaces to prepare it for the loom, at which women and girls work all day, singing their melancholy songs to the accompaniment of the click-clack of the sley, which forces the weft into place.

One variety of fabric so woven is called *orbace*. From a modern point of view it lacks smartness, for it is rather rough and hairy, but it is so strong and so nearly waterproof that officers of the Italian navy, sailors, and sportsmen buy a great deal of it for suits and overcoats.

For women's dresses, the cloth is dyed black, scarlet, or dark red. The peasants use vegetable dyes extracted from the juice of certain berries, and neither rain nor sun can fade the colors. German chemists often studied the plants from which these dyes are taken. In vain they urged the Sardinian women to use the

MOST OF THE TRAVELING IN SARDINIA IS DONE ON HORSEBACK

The saddlebags, or *bi-saccia*, made of coarse wool, are as much a part of the horseman's equipment as is the saddle itself. In the background rises one of the *nuraghi*, those prehistoric ruins which dot the island (see text, page 17).

bright aniline dyes. Some villages experimented with them, but they proved a failure. The contrasts were unpleasing, the tints too bright; the whole effect was inartistic.

CARPETS AND SADDLEBAGS ARE PICTURESQUE

From varicolored wool the Sardinian women weave carpets and saddlebags which are truly wonderful, both for variety of pattern and harmonious combination of colors.

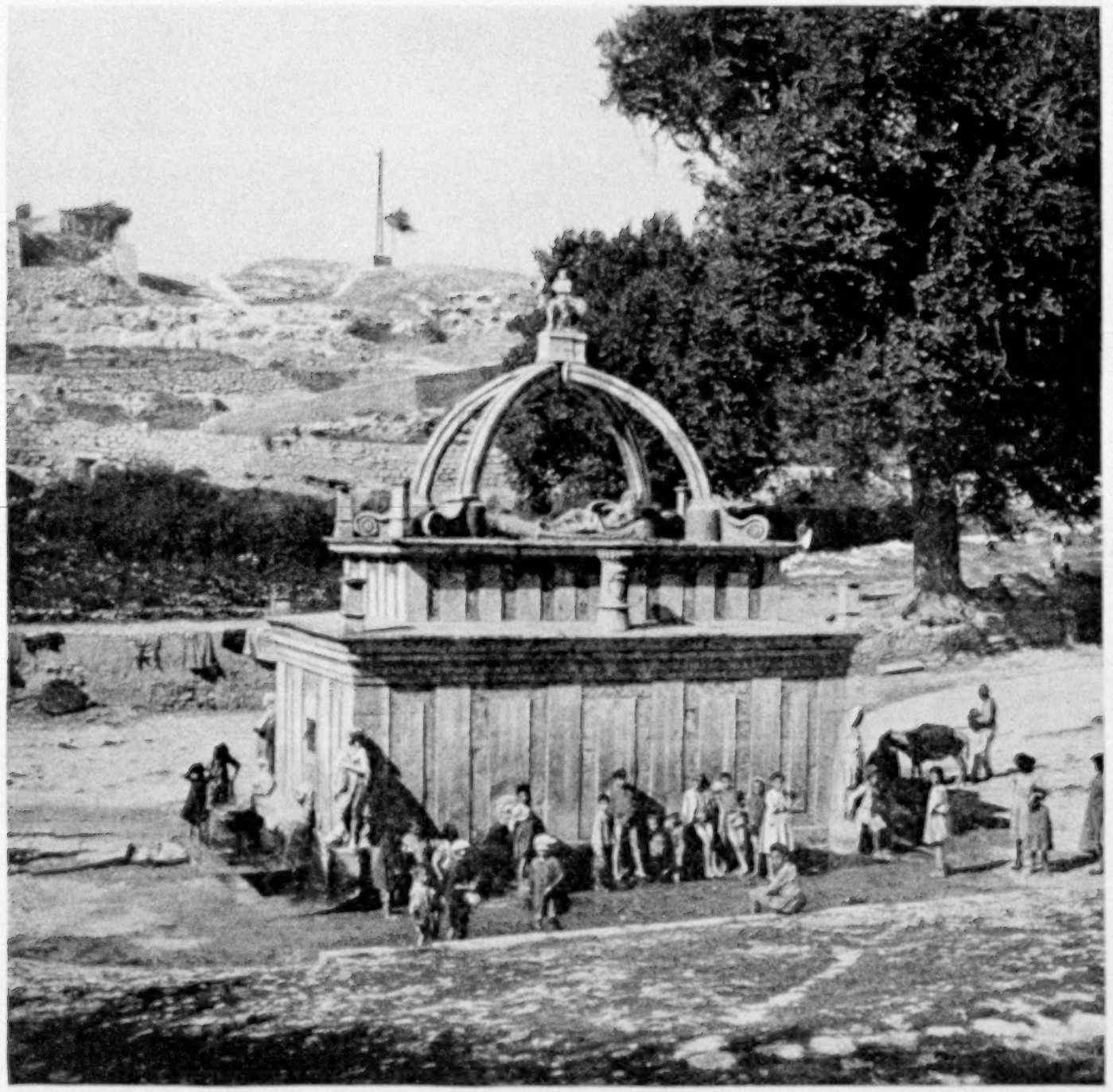
The sense of art in these uncultured people makes a modern painter wonder how women who live so far from any recognized art center succeed in originating such pleasing designs. From generation to generation a natural taste has been handed down by these modest people, who embroider their skirts and bodices and make such splendid carpets that no trained artist could do better.

From June to October the Sardinian calendar contains many festivals. Saints, both male and female, are held in high esteem, but religion is more the occasion than the cause for releasing the flood of music, pageantry, and rivalry. The Spaniards are largely responsible for this trait of Sardinian character.

Whole families of peasants think of the feast two or three months in advance. They hoard every penny and endure great want with the sole aim of spending in one happy day what they have accumulated during weeks of glad discomfort. They travel from distant places in carts covered with tunnel-like awnings and drawn by bullocks or horses.

FURNISHINGS OF A PEASANT CART

The furnishings are simple. A pair of homemade chairs are securely fastened to the sides of the cart for the mistress and any other important personage of the household. The others accommodate themselves as they can on mattress or cushions. The cart is cluttered with household treasures: saddlebags filled with cheeses, bread, potatoes, lambs or kids ready-slaughtered but not yet skinned, caldrons, earthen cooking pots, and children of all ages and complexions, not to



THE WATER-SUPPLY SYSTEM OF SASSARI

At the foot of a hill below the market, in the eastern section of Sassari, is the ever-flowing Fontana Del Rosello, the water of which is carried up to the city in barrels on the backs of donkeys. The baroque fountain dates from 1605 and is crowned by an equestrian statue of St. Gavinus, tutelary saint of the north part of the island, who is said to have been a Roman centurion before his conversion to Christianity (see text, page 29).

mention a lean, underfed cur which is compelled to trot under the cart, to the shaft of which the poor animal is tied by a short rope.

Sometimes the cart is so full that there is no room for the driver, who is compelled to sit on one of the shafts and from there guide the unhappy horse.

No springs deaden the violent jolts which bad roads impart to the vehicle; but the enthusiasm of the travelers is not at all abated by the incommodious cart, and the party finally arrives at the spot where the feast is to take place, a little out of breath from the continuous shaking, but in the best of spirits and eager for all the diversions the feast may offer.

THE WIFE WORSHIPS FOR THE FAMILY

Religious duties must not be overlooked. Wax candles are devotedly taken to the church and placed before the shrine by the housewives, who remain all the morning on their knees before the picture or the statue of the saint, while the rest of the party is busy preparing dinner.

STACKS OF CORK-OAK BARK AT AGGIUS

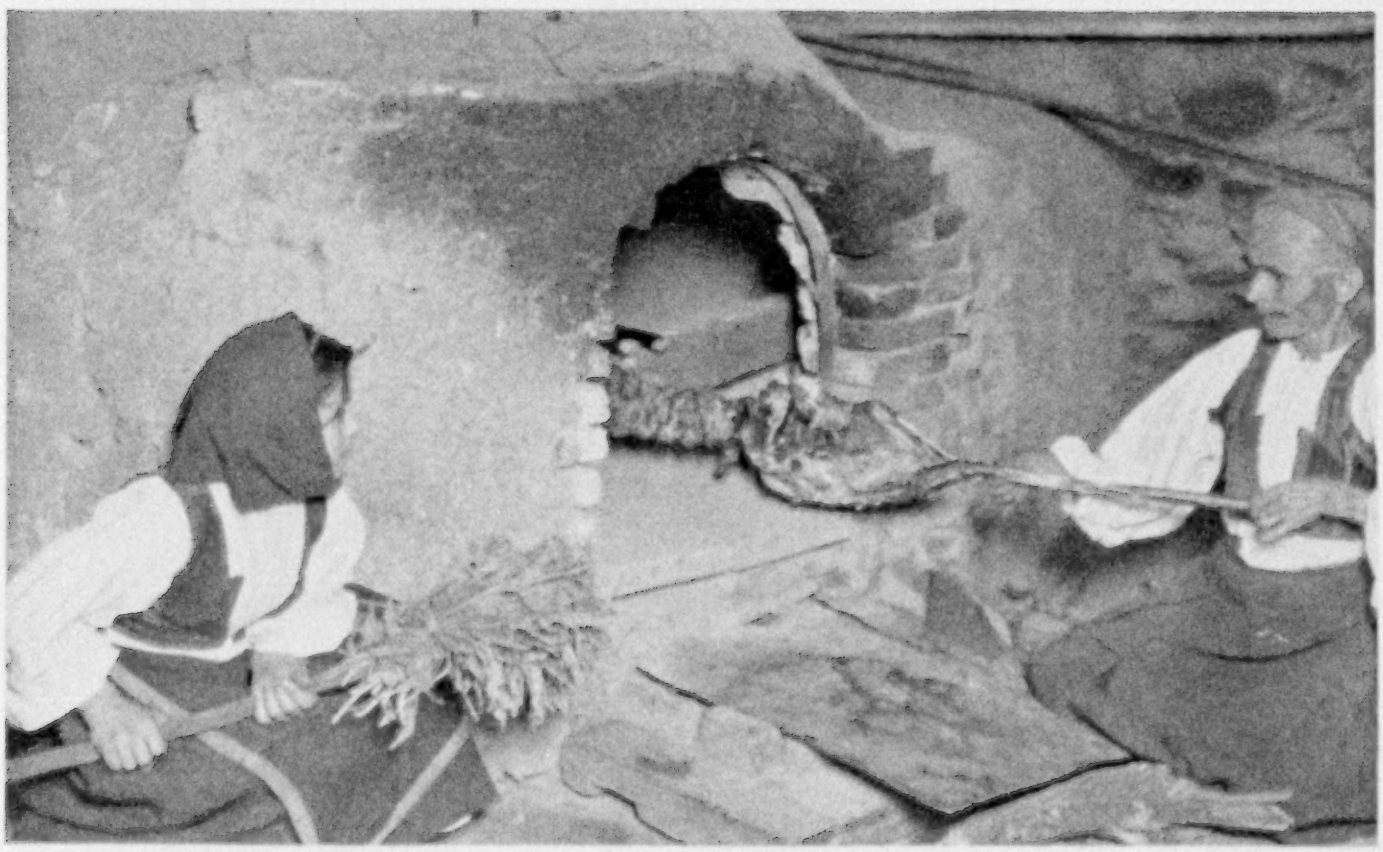
The gathering and export of this bark forms one of the principal industries of the northern region (see text, page 75).

MAKING CORKS

Formerly corks for bottles were laboriously pared by hand, a dangerous process. To-day they are made by machines which whirl the square blocks of cork around a stationary knife.

MAKING READY FOR HER PRESSING

A familiar sight in Sardinian villages is the housewife seated at the door of her home with her large sad-iron. She fans the charcoal into life to heat the iron.



TENDING THE OVEN IN A DESULO COTTAGE

Dry mountain underbrush is used as fuel in these ovens of mud. Long spits of mutton are roasted in them for the wedding feasts, which sometimes last for several days.

AN AL FRESCO TUB

Among the poor in the cities the children are always dirty. When on a hot day enough water can be had, the baby's bath is a very public affair, much enjoyed by neighbors and passers-by.

XUM

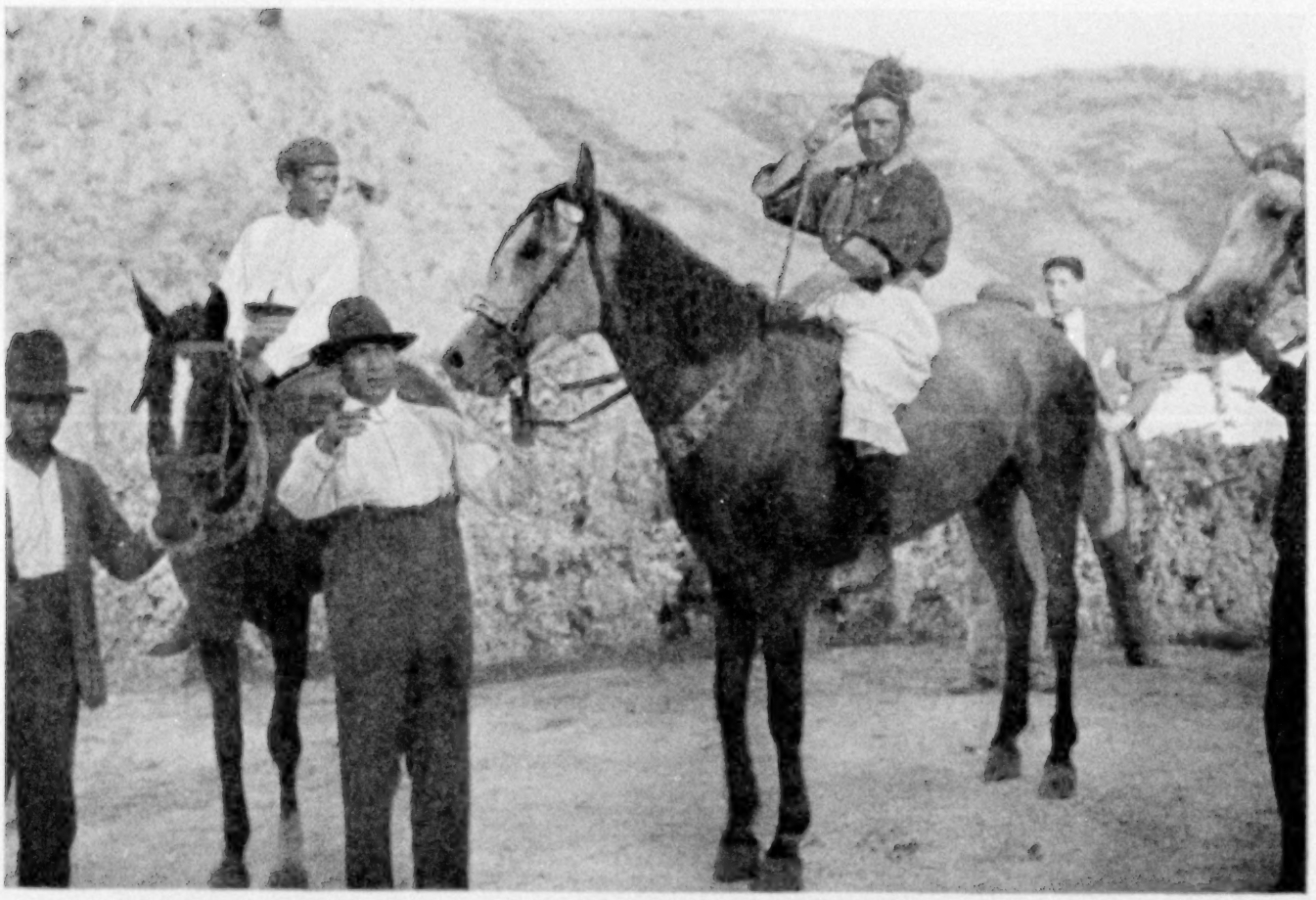
PEASANTS CAMPED IN THE DRY BED OF A STREAM AT DECIMOMANNU DURING THE FESTIVAL OF SANTA GRECA

AT THE ANNUAL FÊTE OF SANTA GRECA

The peasant families come to Decimomannu in their carts and stay two or three days. They camp near the town and roast pork and mutton by their camp-fires. An accordion or other musical instrument is as indispensable as the cooking utensils.

A BARBAGIA MOUNTAIN WEDDING FEAST AT DESULO

The celebration lasts for several days and includes a feast for all the friends of the bride and bridegroom. The wine flows freely and the festivities continue far into the night.



PART OF THIS PEASANT JOCKEY'S HABIT BELONGS TO HIS SWEETHEART

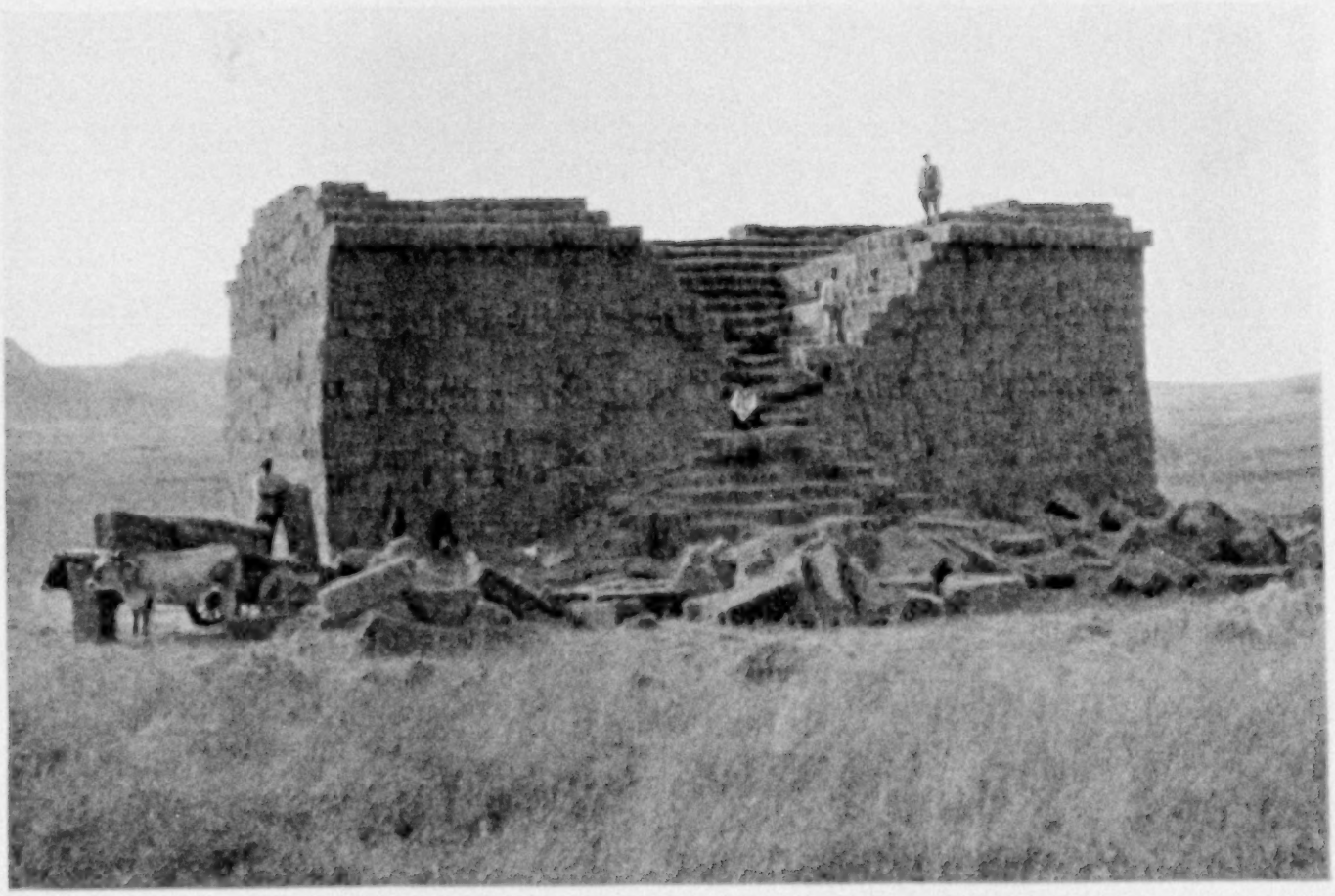
Sometimes there are horse-races during the festivals in the hill villages. The riders dress in queer costumes and their mounts wear fancy bridles and surcingles. This particular horseman thinks his apparel will bring him good luck.

WOMEN AND CHILDREN IN THE COSTUME OF DESULO (SEE ALSO COLOR PLATES V AND VIII)

Made in the home, of coarsely woven mountain wool, this costume owes its color to a fruit and vegetable dye the secret of which was sought by German experts before the World War.

THRESHING WHEAT (SEE ALSO COLOR PLATE X)

The grain is shelled from the head by the steel-shod hoofs of the oxen as they pass many times over the straw. Afterwards the straw and chaff are tossed in the air with forks, and the wind winnows the wheat.



AFTER THRESHING THE STRAW IS BALED

Sometimes the straw is piled in this fashion on the plains near the railway stations, to await shipment during the winter months.

A BUSY MONDAY MORNING SCENE NEAR PORTO TORRES, NORTHERN SARDINIA

As there is no water piped into the home, this brook is a blessing to the housewives, who bring their washing here, balanced on their heads in large tin cans. The clothes after being washed are spread on bushes to dry in the hot sun.

SARDINIA HAS HER CAMP-FIRE GIRLS AND GIRL SCOUTS

These two organizations in Cagliari are under the instruction of women physical directors of the public-school system.

XUM

LITTLE WOMEN OF OLIENA

Dressed in the same costumes as the older women, these girls seem never to have had a childhood. They were very shy and solemn, for this was the first time they had ever been photographed.

All the cooking operations are performed in the open air. A fire is made and long wooden spits on which entire kids are put to roast are turned between two stones before the fire. This method is called *furria, furria* (turn and turn) and Sardinians employ it to perfection.

Casks of wine are put in the shade. Cheese, bread, and vegetables are taken out of the bags, and when, at noon, mass is over and the procession has taken the saint back to the church, the banqueting begins and great merriment reigns.

After dinner the music begins. The accordion is in great demand and so is the *launedda*, a kind of pipe especially common in southern Sardinia. Songs are heard everywhere. In the late afternoon the people get ready for the dance.

The festivals, which generally take place in small churches situated at a little distance from the village, are more or less picturesque, according to the costumes worn by the men and women and the beauty of the surrounding scenery. They offer a capital opportunity for studying the customs and habits of the people. It is a pity that such feasts occur in a season which is not really favorable for the tourist.

HOW THE SARDINIANS DANCE

In the *Ballo Tondo* or *Duru Duru* the dancing partners join hands in a circle and wind to the left with a step rather difficult to describe and equally difficult for a novice to perform. This dance is but a memory of long-forgotten rites, when Baal and Astarte were the popular gods. The dancers hold their bodies erect, their countenances are stern, and the feet move continuously, advancing or receding with little leaps and bounds, all performed on tiptoe.

Now and then, when the dance has reached the utmost excitement, the male partners suddenly break out into wild shouts, but soon silence reigns again. The

THREE GIRLS OF DESULO

Even the dolls in Desulo are dressed in the coarse, red *orbace,* so it's quite natural for the children to dress as their mothers and older sisters do.

ladies dance with grave demeanor, with lowered eyes and modest mien. Any one may join the dance, but the newcomer must be careful not to break the circle to the right of a male dancer, as it is considered a serious offence to separate a couple. That is logical enough. When a young man invites a girl to dance he offers her his right hand, and in so doing chooses her as his partner.

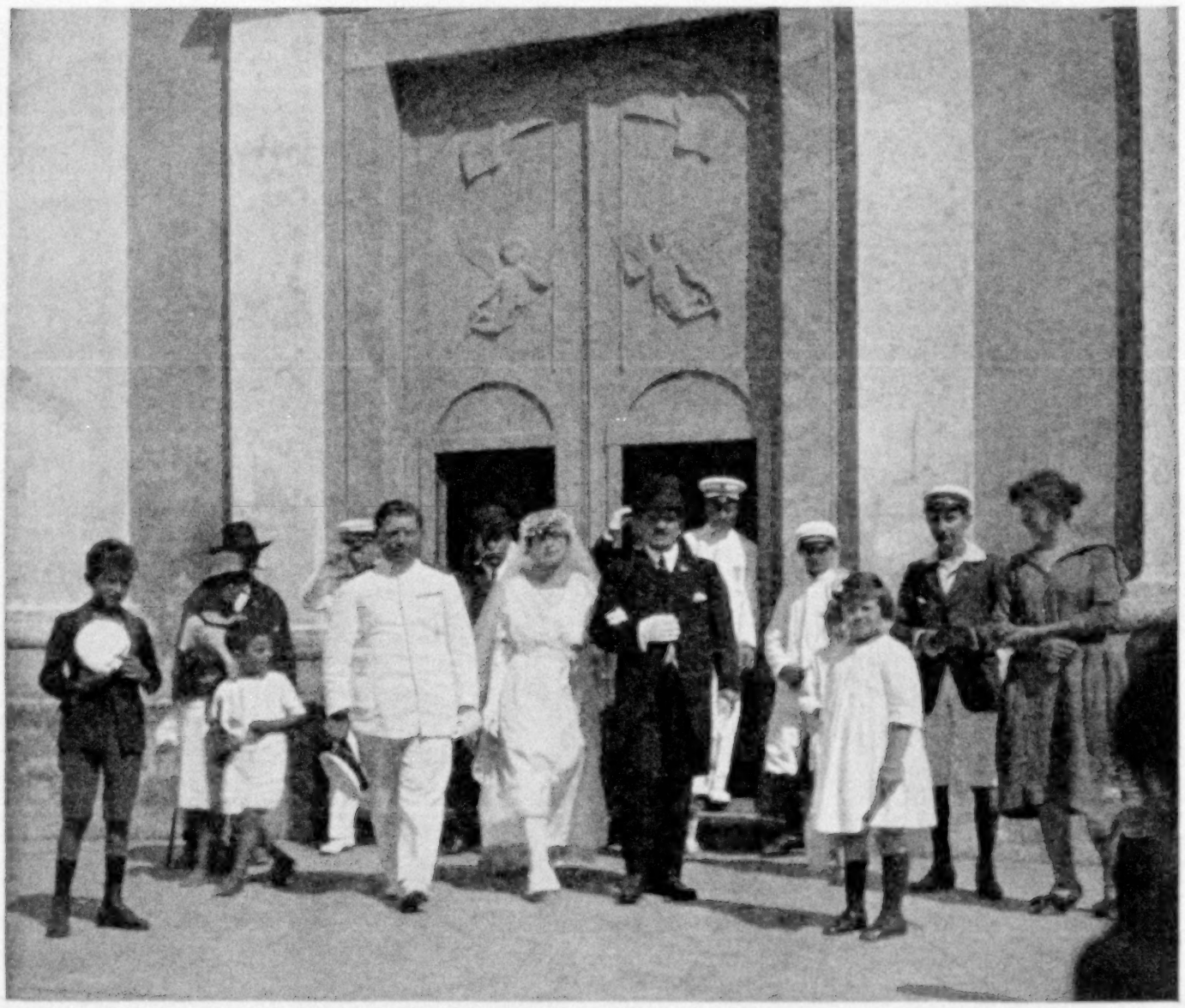
A FESTIVAL DATING FROM 16TH CENTURY PLAGUE

In the two most important towns of Sardinia, where civilization has had the deepest influence, some old religious festivals have survived, and though they have lost much of their primitive splendor they are still popular. At Sassari, on the 14th of every August, a great procession takes place which has not a wholly sacred character, but is a compromise between a religious procession and an English pageant.

After the terrible plague which destroyed so many inhabitants in 1582, the people made a solemn vow to carry in procession a certain number of huge wax candles, to be placed, all lighted, around the statue of the Madonna di Mezz Agosto (Middle of August); but as such tapers proved expensive, the people sought a cheaper substitute. Accordingly, wooden candlesticks were made, and to these are fastened banners of different colors and patterns, the whole ornamented with tinfoil and tinsel.

Every corporation and trade union has its own candle, manifesting a certain pride in decking it. The various members who follow it in the procession hold large silk ribbons attached to the capital of the column, and while the candlestick, carried by the stoutest and strongest porters to be found in Sassari, goes down the main street, the members who have wrapped upon their arms yards and yards of gorgeously colored ribbons slowly let them out to their greatest length.

It is a very beautiful sight to see all these silk ribbons glittering in the last rays of sunset and waving in fanciful evolutions, as those who hold them in



A CITY BRIDE AND BRIDEGROOM COMING FROM CHURCH

The duration of the ceremony is seldom more than five minutes.

their hands advance or recede. No priests are in the procession. At the rear walks the mayor of the town, surrounded by the council members and protected from the pushing of the eager crowd by the municipal guards in full-dress uniform.

Most of the corporation members wear quaint old Spanish costumes and the whole procession is enlivened by the sound of small drums, beaten frantically and continuously while the pageant lasts, and by the sharp notes of flutes, which play a tune so gay that it makes the stout porters unconsciously assume a gait which has all the rhythm of a ballet. When the procession finally reaches Saint Mary's Church the candlesticks are placed around the statue of the Madonna and the feast is over.

Another religious festival, the most renowned and characteristic of all, is the festa of S. Eficio, the patron saint of the Province of Cagliari.

The ceremony takes the form of a procession to and from Pula, a village situated on the south side of the Gulf of Cagliari, where, according to legend, the saint is believed to have suffered martyrdom. The image of the saint, an ugly, garishly colored wooden statue shiny with varnish, is carried in a coach all paint and gilt, drawn by a team of oxen whose long horns are covered with nosegays and whose necks are decked with banners of rich brocade.

The procession is escorted by a cavalcade in the costumes of the ancient militia, and the coach is preceded by musicians playing launeddas. The ceremony takes place on the first of May and the saint comes back to Cagliari after sunset on the fourth.

Great efforts are being made to maintain these festivals unaltered, but the concourse of visitors from all parts of the island is not so great as it was some years ago. The once keen enthusiasm for these ancient customs, which are but a relic of the Spanish rule in Sardinia, has become lukewarm.

A BELLE OF LA MADDALENA

In the veins of the Sardinian of to-day flows the blood of many races. Sometimes one racial strain seems more pronounced than another, as is the case with this Spanish type of beauty.

FEW HOTELS OR INNS

In a land that does not possess many hotels or inns, the system of receiving travelers is more than a custom; it is almost a law. Hospitality is one of the strongest traits of the Sardinians. A stranger is always received with the utmost cordiality and sociability, everybody being anxious to do something to help him. Accustomed as the Sardinians are to solitude and silence, they fear that a person may feel too deeply the loneliness of traveling unknown in a country where villages are so far apart.

Sardinian hospitality has always been spoken of in the highest terms by authors and travelers. It has come down to us unchanged from the old Roman days, when the shrine of Jupiter Hospitalis was erected in every village and palace in the island.

THE GUEST, A SACRED PERSON, IS FORBIDDEN TO PAY

If you happen to reach a village on a feast day, you are never left alone. Somebody is sure to come and invite you to enter his house, to sit at his table, and to partake of his dinner. If you have a letter of introduction for some influential person of the place, you will receive an almost regal reception.

A foreigner who is unaccustomed to such treatment is reluctant to accept an invitation so freely offered. He wants to pay for every assistance he receives, but he cannot. He is forbidden, for the guest, as in the days gone by, is considered a sacred person, and even in towns where life is much the same as in any other part of the world, this sense of hospitality is not completely lost, but is made manifest in a thousand ways.

In some villages an inn, or something resembling an inn, is managed by a person who in most cases is not a native of

IN THE GALA COSTUME OF OSILO (SEE ALSO COLOR PLATE XIV)
A fine white veil is always worn under this embroidered headpiece.

the place. In such places a stranger is sometimes overcharged, though of course only from a Sardinian point of view. Perhaps they charge too much for the food they furnish; but one must consider that guests are so rare and expenses so heavy that the business is not a profitable one. If tourists and merchants would visit these places more frequently, inns and hotels would provide more of the comforts of modern life. But on this subject prospective visitors must not be deceived. Accommodations in Sardinian inns are not good, and in the whole island there are but few hotels.

Unless one is willing to sit at a low table in a room full of smoke, eat roast pig and rough bread and cheese from the family store, and drink strong wine which makes tears come to his eyes, he cannot possibly know Barbagia.

And until the traveler rides on one of those ponies that with steady step climb the mountain slopes along winding paths, seated astride a quaint Sardinian saddle with a saddlebag full to the brim of all the provisions for a long journey, and stops in the heart of a forest to see a kid roasted according to the Sardinian fashion, he cannot know those wild landscapes which to know is to love.

WHERE TO FIND THE RICHEST COSTUMES

An accurate description of the different articles which constitute a Sardinian woman's costume would take pages. The most artistic are to be found in the northern districts. The women of Osilo wear the richest dresses in all the island. In Nuoro the women and girls retain the old fashions unaltered. At Oliena, Fonni, Desulo, and Aritzo the costumes vary greatly both in colors and pattern; but, sad to say, Sardinian costumes are rapidly disappearing. Everybody is anxious to dress in modern style. Young peasants have already put aside the male attire of former days and only the old villagers have any attachment for the costumes of their forefathers.

The costume of the women of Quarto Sant' Elena is described in every guidebook, but in vain would a visitor go to that large village in search of one. Only five or six specimens now exist and they are jealously kept in the bottoms of family chests, as souvenirs of a colorful past.

In Cagliari, for months and months no woman or man wearing a distinctive native costume is to be seen. Now and then, for some fancy ball or similar event, the elegant young ladies of Cagliari borrow costumes for a few days and wear them through the streets. Everybody turns and looks with admiration at the unusual sight, to the amazement of foreigners, who on coming to Sardinia expect to find everyone in gay attire.

Artists and archeologists are thinking of founding in Cagliari an ethnographic museum containing specimens of the costumes of the various districts of Sardinia. Funds are already being raised for that purpose (see Color Plates I to XVI).

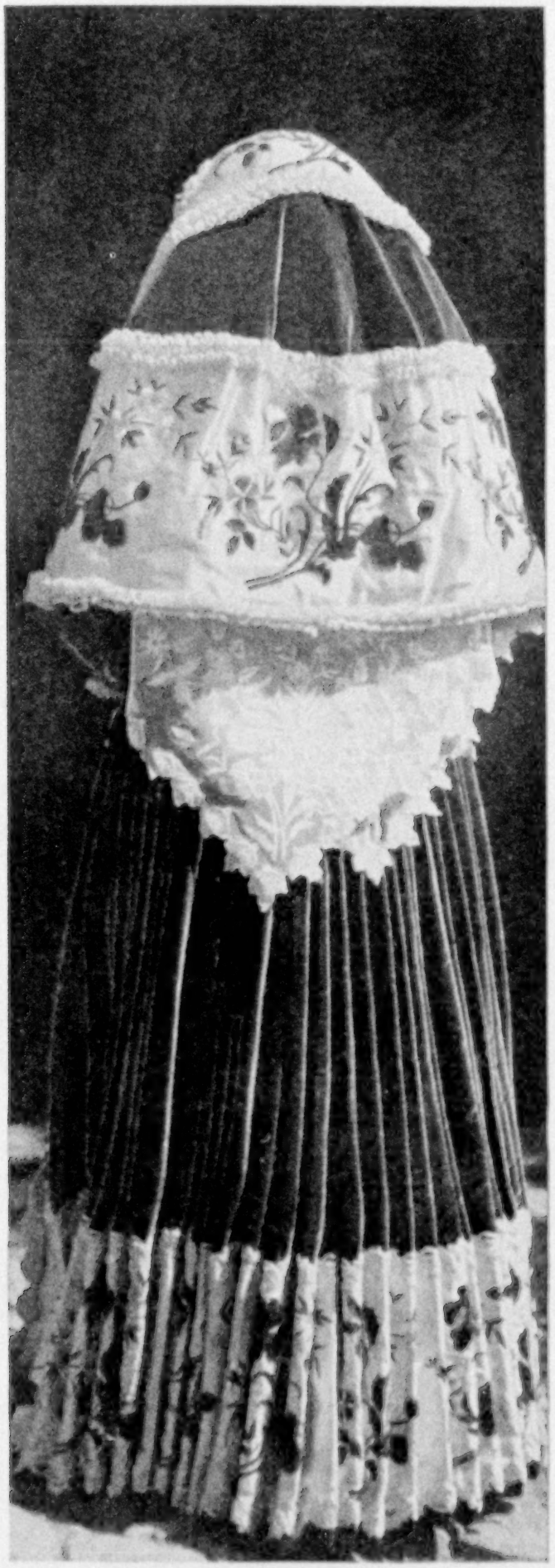
COSTUMES NOW TOO EXPENSIVE FOR PEASANT BRIDES

Although costumes are a sort of family heirloom handed down from mother to daughter, they do not last forever. A modern bride cannot afford to have one made for her. Since the war the prices of brocade and silk have increased four or five fold and so have jewels. How can a peasant girl of Osilo, about to be married, afford $800 for a complete festival costume? She must content herself with a dress which, being designed after her own fancy, has lost the best features of the primitive costume.

Moreover, the farmers and rich peasants in the villages are wont to send their sons and daughters to the nearest town to attend secondary schools. When the boys and girls return home they will no longer wear native costumes, but want to be dressed in the latest European fashion. In Sardinian villages, even in the interior, you often see a mother, dressed in the most beautiful and gorgeous costume imaginable, walking beside her daughter, who is dressed according to the *dernière mode* of Paris.

Sometimes the daughter compels her mother to lay aside the fine old costumes and put on modern dress. The unhappy woman, not being accustomed to wear such inartistic modern hats, looks so awkward and embarrassed that she is very often laughed at and scorned by the townspeople and called a country cousin.

Authors have a lamentable fault—that of flattery through imitation. They are too often disposed to copy one another.



A REAR VIEW OF THE OSILO COSTUME

The headpiece is of red silk, with top and band of white silk embroidered in multi-colored flower patterns, beneath which a fine white veil is worn. The skirt is of plaited scarlet silk, with a wide embroidered band at the bottom.

A STRIKING EXAMPLE OF SARDINIAN ART IN SCULPTURE

Sardinian monuments are usually of little interest, but this one to Quintino Sella, the pioneer miner, which stands in the Piazza Sella at Iglesias, is strikingly beautiful in its contrast of white marble and the black volcanic rock of the region.

The wisdom of a past generation too frequently appears under new but inadequate disguise. Instead of describing what one sees and feels, which would be best, one is unconsciously tempted before visiting a place to read what some earlier visitor has said and felt about the same place, and thus pour fresh impressions into old molds.

Often authors come to Sardinia in a hurry, hire a motor car, run through the country at a speed of 30 miles an hour, and after a few days go back to the Continent and write a book about what they have seen. When they perceive that they have neglected an interesting place or missed a useful fact, they paraphrase what previous authors have written. Misstatements about Sardinia are therefore so numerous that they would, and do, fill many a book.

A legend too strongly rooted still persists about Sardinia as a land which cannot be conceived without its shepherds, wearing goatskin mantles; its large inclosures decked with asphodel; its women all dressed in the most gorgeous costumes, dancing and singing all the day long, and banditti at every house corner.

Many of these things still exist, but to discover them one must go to the interior of the island, in places situated far from the railways and high-roads.

IGLESIAS DISTRICT RICH IN MINES

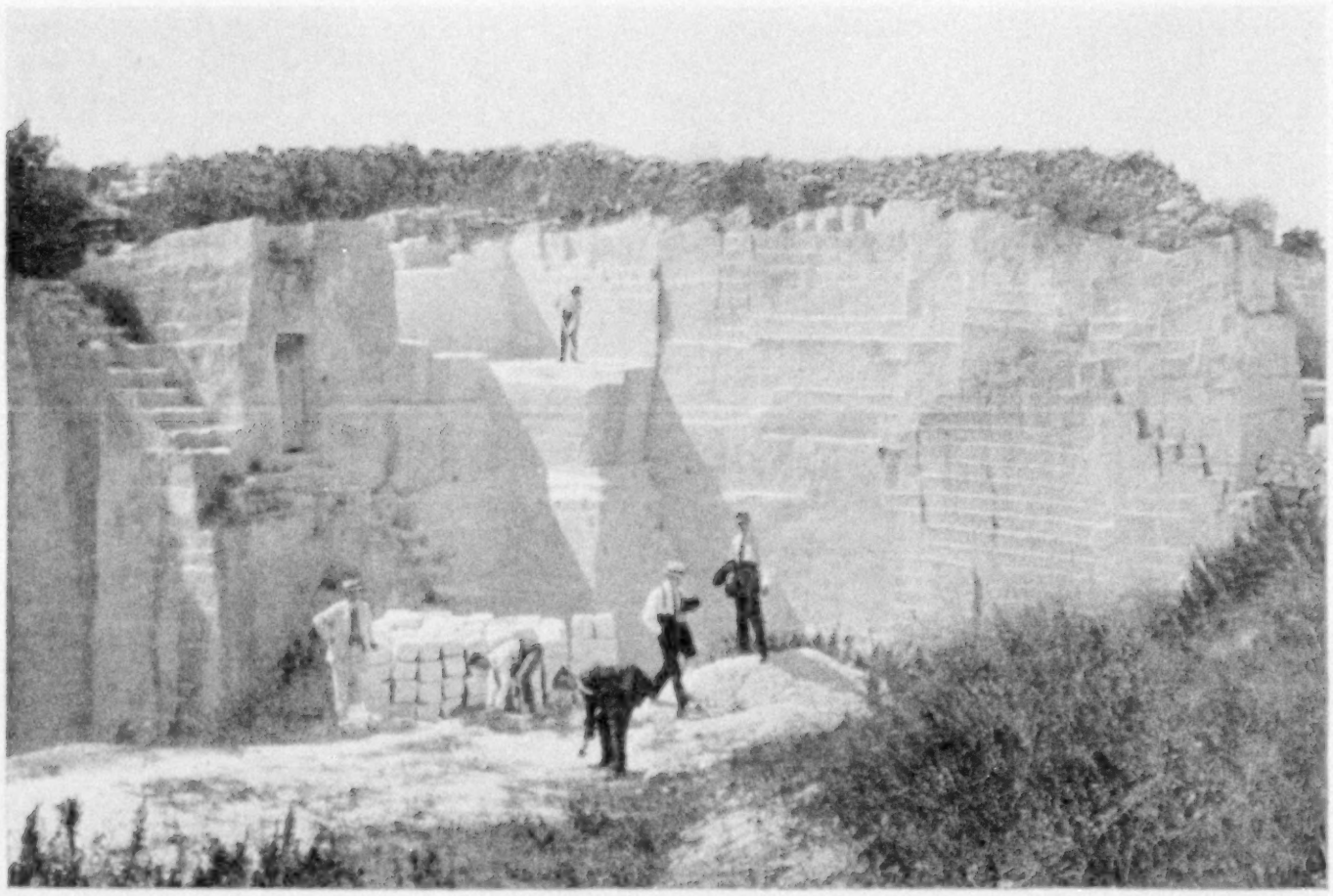
A visit to Iglesias is interesting. The visitor finds himself in a Sardinia of which he has read nothing. Mines dot the region, tall chimneys streak the sky with smoke, machinery of all kinds makes the valleys echo with noise. The country is crossed by electric wires fixed to high iron towers, the main roads are traversed by a great number of modern vehicles, and in this district the old Sardinian cart is seldom seen.

This is industrial Sardinia, so little known abroad, which will have a great expansion when the reservoir of the Tirso is formed and electric current provided at a cheap price.

Cagliari has all the appearance of a

AN EXCEPTIONAL BLOND TYPE OF ISLAND MAID

Although she lives in a village in a barren mountain region of Sardinia, she is not unlike an American in features, dress, and actions.



A ROCK QUARRY NEAR SASSARI

This is soft white limestone and is sawn out in blocks, which are much in demand for building stone on account of the ease with which it can be worked.

modern continental city of the size of Pisa. Near the harbor, studded with steamers and sailing ships, a long, wide street lined with palaces looking out upon the sea, leads from the station to the Basilica of Buonaria. Upon this street open two broad thoroughfares, which, with a steep ascent, lead to the upper quarters (see illustration, page 2).

The town boasts terraces which command extensive and magnificent views. Whoever has walked for a while on the Bastione San Remy has received an indelible impression. From this elevated concourse the view of sea and land, of pools and meadows, is such that to live in Cagliari is to live upon a mountainside, perpetually refreshed by the exhilarating environment of space.

The town has monuments, elegant shops, theaters, bars, and clubs, a good school system, a university, and a public library.

During the summer months the favorite resort of Cagliari is a wonderful beach, with commodious bathing establishments. One part of it is called the Lido, in imitation of the celebrated Venetian strand, and many say that comparison is favorable to the Sardinian shores.

In Cagliari a visitor is always interested in the medieval monuments. Its towers, built by the Pisans about 1300, are standing in a state of perfect preservation (see page 6), and the gates to the Castello quarter, as well as the Cathedral, are worth visiting. In the same quarter is an archeological museum, with a hall dedicated to pre-Roman history, presenting a picture of prehistoric Sardinia, with its *nuraghi, domus de gianas,* and other relics of a hazy past.

CAGLIARI HAS MANY MODERN INDUSTRIAL PLANTS

The town has industries, but they are quite modern and, of course, no guidebooks mention them. There is the chocolate manufactory, a factory for making cement, and a porcelain industry which promises a splendid future because of the excellent raw material in which Sardinia is rich.

Sassari, in its new quarters, is clean and lovely, and continental people prefer living there because it has an atmosphere

comparable to that of the ordinary Italian town. This city also has industries, most important of which are tanneries that have already acquired renown in continental Italy and in France. From the olive groves surrounding the town the finest oil is produced and sold at high prices.

Tempio manufactures the products of its oak forests into cork (see illustrations, page 58), and in all Sardinia there is an awakening of industry and commerce which is encouraging.

Home industries are also thriving. At Bosa the women make very beautiful laces after old patterns, which are greatly appreciated not only in Sardinia but in Italy and abroad.

THE HOME OF SARDINIAN BASKETS

At Castel Sardo, in the Northern Province, and at Sinnai and Settimo in the South, the industry of basket-making is well advanced. The baskets made in Castel Sardo are the best and are sold as far away as Philadelphia. The leaves of a dwarf palm which grows in the wild flat plains of the north are used. Figures of animals and flowers fashioned from palm leaves which have been exposed to smoke in the kitchen for several months, so that they take on a permanent blackish hue, are cleverly woven into the pattern (see illustrations, pages 27 and 28).

At Isili, in the Province of Cagliari, fine carpets are woven on hand looms and sold everywhere. Sardinian artists are making every effort to keep unaltered the native designs of both carpets and baskets. They insist that the women continue to dye the former with the juice of wild berries, as in the past.

The major portion of Sardinia is mountainous, and these heights, once covered with forests, are now in the main barren and desolate. Continental speculators cut down the forests and converted the wood into charcoal, and the Italian Government and the Sardinians have been very slow to reforest the cut-over areas.

Only one-eighth of the land is under cultivation—a fact due, first, to the preponderance of hill over plain, and, second, to the lack of rain in summer months and a variability of climatic conditions which prevents sure harvests.

The cultivated ground is well tilled. Mechanical implements are commonly used, especially in the Campidano, and the old Sardinian handmade wooden plow is used only in the mountain districts, where the turf has but little depth.

The large reservoir of the Tirso and the projected reservoirs of the other rivers will supply the necessary water in the hot season and will be a boon for agriculture.

Of live stock, sheep and goats constitute the majority; but even among them, left as they are to pasture where Mother Nature has provided food, the mortality during a prolonged drought is very high and the loss of money considerable. When the season is favorable, stock breeding is profitable.

LACK OF MAN-POWER IS SARDINIA'S GREATEST HANDICAP

It has already been said that the main feature of a Sardinian landscape is its solitude. The whole population of the island is less than that of Naples. The few people are scattered over a large territory, with villages sometimes more than fifteen miles apart. Only Cagliari and its environs have a comparatively dense population.

This lack of man-power is seriously felt in every branch of human activity. The island's population has been further diminished in recent years through losses on the battle-fields of the World War.

Much remains to be done, though much has already been accomplished. The petty jealousies kindled by the Pisans and maintained by the Piedmontese between the two provinces of Sassari and Cagliari have completely disappeared.

The Sardinians are now united in their efforts to improve their land. Especially since the World War they have put on the armor of pride and are conscious of their strength. They know the Americans, because they saw the Star-Spangled Banner floating everywhere, when representatives of the American Red Cross gave to Sardinia assistance of every kind. So, let the Americans now know the land of the *nuraghi* and learn to appreciate her.

XUM

Photograph by Reiffenstein

BELVEDERE PALACE, THE FINEST IMPERIAL BUILDING IN VIENNA, DATING FROM 1713

Prince Eugene of Savoy first occupied the Belvedere. Early in the 20th century it was fitted up for Archduke Francis Ferdinand, whose murder at Serajevo kindled the fires of the World War. Recently it was used by the American Relief as a feeding station.

VIENNA—A CAPITAL WITHOUT A NATION

By Solita Solano

Author of "Constantinople To-day," in the National Geographic Magazine

BANKRUPT Vienna has nothing left except an incomparable geographical situation on the Danube. Until recently one of the richest and gayest cities on the Continent and the center of Europe's oldest empire, she is to-day the capital of a few mountains and rivers that occupy a small corner of her former dominions. The dissolution of an immense polyglot empire has brought ruin to Austria and put Vienna in pawn to the world.

On the edge of a shriveled little republic of six million insolvents, Vienna has been waiting for a rescue party and living on alms. While waiting, her currency has dropped until now it takes many thousand of her twenty-cent pieces to make one American dollar.

Surrounded by countries that are nursing ancient grudges against her, dependent on them for nearly all her food and fuel, and with only worthless money with which to pay her bills—this is the fate which has brought almost unparalleled national misery upon a highly civilized people in a famous center of learning, art, and culture.

MISFORTUNE HAS NOT ROBBED VIENNA OF HER BEAUTY

Despite her tragic atmosphere, Vienna is still a beautiful city, with the cosmopolitan charm of Paris. In area she can compete with London, for her limits embrace more than 105 square miles. The city, however, is not built up to its limits, but is surrounded by a belt of meadows and wooded hills known as the Wiener Wald, from which many of the beautiful trees have been cut down in the past three years of fuel shortage.

The Danube, which has given Vienna her important commercial position, divides into several arms after leaving the limestone hills above the city, and a picturesque winding canal diverts some of the water through the northwest part of the town to the warehouses, filled with foreign food for the hungry population.

No finer buildings can be found in Europe than in this city of the Hapsburgs. Several races labored at building Vienna for more than a thousand years, and the artistry of many peoples is represented here. The buildings are a record of the changing taste of western civilization.

THE RING-STRASSE SURROUNDS THE INNER CITY

Baroque architecture, which came to grief in Rome and to perfection in Vienna, has many brilliant examples, particularly in the Inner City. This is the oldest part of Vienna and is inclosed by the famous Ring-Strasse, a boulevard 187 feet wide, with double rows of trees, and built, like the old boulevards of Paris, on the site of fortifications which once extended for three miles about the core of the city.

Within or on the Ring are the imperial palace buildings, the great Gothic cathedral of St. Stephen, the celebrated University, the Parliament building — that Greek temple where the National Assembly of the Republic now sits — the immense twin museums, the Exchange Building which is the city's pulse, the Opera and the Hofburg Theater, all in a setting of linden and horse-chestnut trees, which frame the boulevard and avenues and line the walks of Vienna's lovely parks.

Outside the confines of the Ring are many palaces, embassies, chateaux, museums, hotels, and handsome stone apartment-houses like those of Berlin.

In this splendid setting an economic upheaval has completely overturned every normal social condition and changed the destinies of all classes of the population.

The workingman is now on top of the heap and will be provided for as long as the Social Democrats are able to make their governmental machine function.

Next down the new economic scale come the titled aristocracy and the other upper classes who used to live by "unearned increment." Many of these have spent their principal since the revolution and have come to bitter poverty.

XUM

Photograph from Solita Solano

TWO SOLDIERS DISABLED BY THE RECENT WAR NOW SELL MATCHES AND BEG

Lowest on the scale is the middle class—the real tragedy of Vienna. Forming a fourth of the population and including the intelligentsia, this entire class, to whom the city in large measure owes its greatness, is beggared, hopeless, and apparently doomed to extinction.

The plight of this middle class is the last thing the traveler sees. If he is a casual person, who lives on surfaces, he may even leave the city with the impression that all is going well with the Viennese.

There is nothing in the hotel district on the Ring to indicate to him that here is a city that is running along on mere hope.

He will be served plenty of good food. He will see many luxuries in the shop windows priced beyond his pocketbook. Opera tickets are unobtainable, he may find, unless he tips a hotel porter to stand in line at 7 o'clock in the morning.

Gay crowds that bet freely will surround him at the races. He will pass flower stands piled with roses of the American Beauty variety, and fruit venders who have mounds of hothouse strawberries, larger by far than those sold in New York. He will see drab corners blazing with oranges, the first that have come to Vienna in eight years.

If he wishes to take tea at a smart café, he will have to get there early or he will find all the tables filled. Strolling about the Ring afterward, he will see scarcely a person who is not well dressed, well fed, and equipped with one of the large leather money satchels which the inflation of currency has made popular.

But all this is seen in the Vienna of the tourist, near the Ring. Dollars, pounds, francs, and lire keep the hotels and shops running at a profit. Here, too, come the exchange and war profiteers, known as the *schiebers*, who spend a former year's income for a dinner. They are dressed in expensive bad taste, diamonds glitter on every hand, and they shout for their waiter in low Viennese dialect and Galician jargon.

IN VIENNA MONEY SAVED IS MONEY LOST

Crowds of shoppers and holiday-makers from Czechoslovakia and Jugoslavia, across the borders, also come to the capital to convert their money into Austrian crowns and buy luxuries which they could not afford at home. They hate the city

that formerly ruled them; but after all, it is their Paris and still sets the fashions.

Fringing the throng of foreigners, the Austrians can be seen on their periodic shopping trips, which coincide with payday. Money kept loses value automatically as the crown falls. Clothing and food are worth something concrete. Austrian money is without value.

For a long time those who wished to save bought dollars with crowns, which only had the effect of making the crown fall even faster, so that until recently the government restricted the sale of foreign currency and forbade the shops to ask for it. Nevertheless, foreigners were begged to pay in dollars instead of crowns, and many a lucky Viennese has a little roll of American dollar bills hoarded against the deluge.

Photograph from Solita Solano

FIREWOOD VENDERS IN VIENNA

If the traveler stays close to the Ring district he will think this part of Vienna is typical of the whole city. But let him go motoring near the outskirts and he will see armies of ragged women and children on the city's dumping grounds combing the heaps of refuse for bits of food, metal, or glass. Families carrying two or three chickens under their arms take their fowls from spot to spot, setting them down to peck at any likely looking mound, while a child is sent ahead to prospect for another place with possibilities.

THE CITY IS SURROUNDED BY SMALL GARDENS

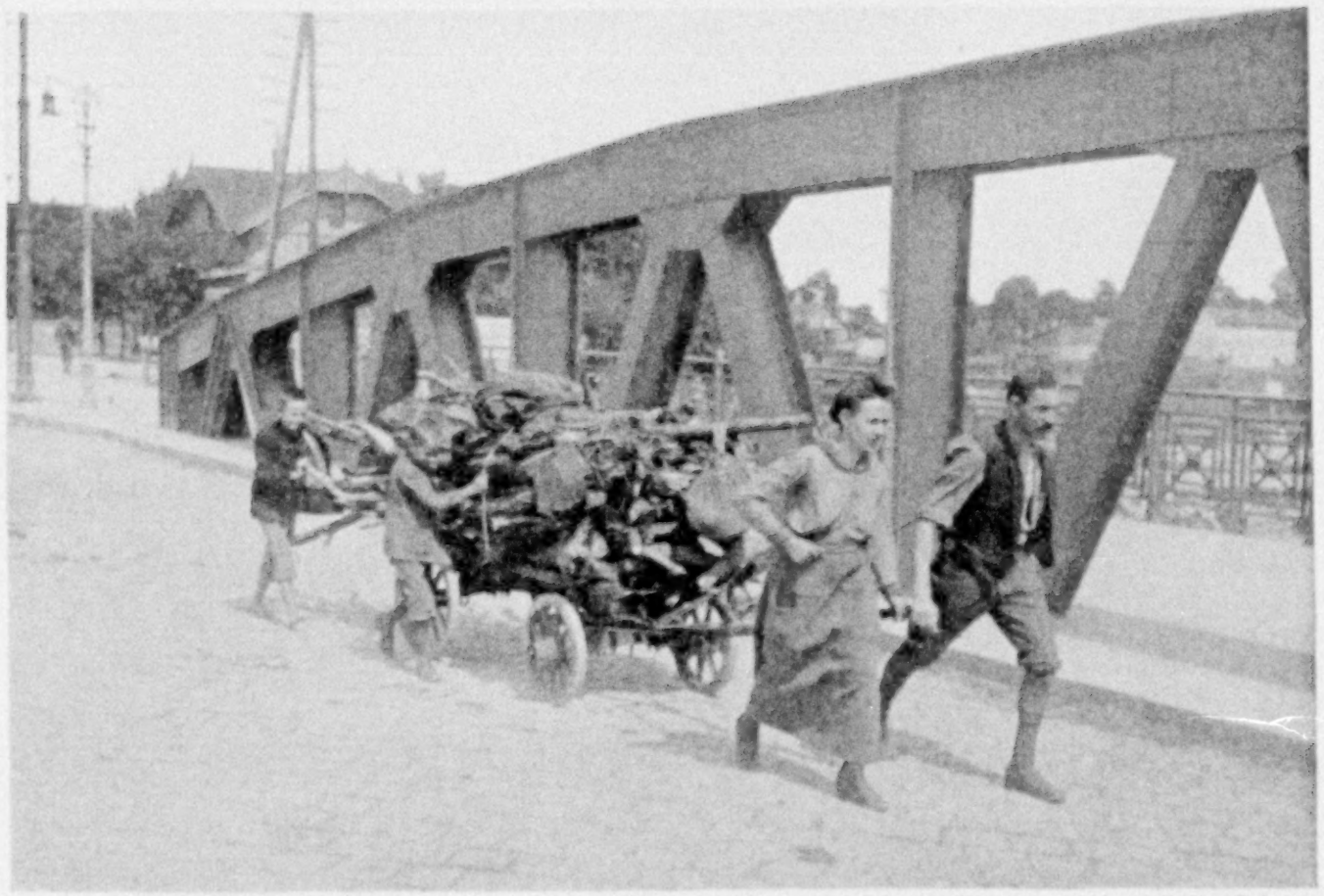
On the edge of the city the traveler will come upon curious little patches of gardens, each with a makeshift fence and a wooden building that looks like a child's playhouse. Women and children are weeding and carrying water. They do not waste ground by having paths, but step carefully between the plants. Blocks of scarlet poppies, raised for their delicious seeds, dot the hillside.

The traveler is told that there is no end to these garden homes. They surround the city like a ragged girdle, and are the result of the housing famine that has driven thousands of families to live here in huts, even in cold weather, where they add to the city's food supply by raising vegetables about the front door.

These are the Schreber Gardens, modeled after the famous ones of Berlin, and

Photograph from Alice Schalek

THE COAL SHORTAGE IN VIENNA CAUSED THE DENUDING OF THIS FOREST



Photograph from Solita Solano

A FAMILY TAKING HOME FIREWOOD GATHERED ON THE OUTSKIRTS OF VIENNA

Sometimes they go five miles for such fagots. Large forests have been destroyed for fuel since the coal shortage (see text, page 102).

Photograph from Alice Schalek

STANDING IN FILES AT MARKET, WAITING FOR SPINACH

Photograph from Solita Solano

A VIENNESE FORAGING PARTY BACK FROM THE COUNTRY

In the packs of the foragers are potatoes, lard, pork, and perhaps a chicken or rabbit, obtained from farmers in exchange for bolts of cloth, scissors, shoes, etc. (see text, page 95).

Photograph by Reiffenstein

THE AM-HOF MARKET, THE LARGEST SQUARE OF THE INNER CITY

Surrounding this square are the old War Offices, the old Civic Arsenal, the Fire Station, and the Church Am-Hof. In the center rises a column of the Virgin, erected in 1668.

are all that save their owners from a diet of black bread and noodles every day in the year.

Each cluster of gardens has as a center a miniature delicatessen stand and an open-air beer hall, where men, women, and children refresh themselves after a hard day's gardening.

THE VIENNESE STILL ENJOY THEIR HOLIDAY TRAMPS

But this is dissecting Vienna into its separate elements and ignoring the curious national psychology which animates all classes. The gaiety which has always characterized the soul of the Viennese has an elastic quality which has enabled them to survive the most extraordinary hardships and soul-racking times without depressing their bubbling spirits.

As long as a man has his old Tyrolean hiking costume of leather breeches and a feathered cap, and a woman her peasant's costume, with its black bodice and red apron, they will pack raincoats, bread, and cheese into a knapsack, take their children by the hand, and start off for the country.

Every Sunday and holiday is spent in care-free tramping. Laughing and romping, the bare cupboard at home forgotten, they hike to the country, through sun or rain, to some favorite spot in the Wiener Wald.

At nightfall they turn back, entering the city as the opera and theater crowds are rushing to catch the last trams for the suburbs. Perhaps a bottle of wine has prepared them for their long walk back in the darkness and inspires them to shout and sing as they return to the scene of their eight years' privations.

Their sufferings have left no deep or bitter impressions. Like irresponsible children, many seem to regard the aftermath of the war as hard punishment, after which they were sent to bed without any supper. But to-morrow surely they will be forgiven and the good old times of plenty will come back. No one will leave them to starve. America always feeds hungry countries. If not America, then some one else will provide.

LIVING ROOMS COMMANDEERED BY GOVERNMENT

The housing crisis in Vienna is the worst in history and is not yet solved, in spite of heroic efforts and city government control. All building activities having ceased during the war, the congestion was increased by war profiteers, who flocked to the capital from the provinces, followed by thousands of recalled Austrian officials.

To avoid riots, the city adopted forcible billeting, which still obtains. All dwellings, whether palaces or tenements, are listed by the *Wohnungsamt* and the number of rooms compared with the number of persons. After the comparison, all available space is commandeered.

Baronesses and wives of workingmen alike are forced to take in lodgers. No one may have an extra room while homeless thousands are sleeping in barracks, parks, and freight cars; nor may any one have a house in the city and another in the country. He must give up one and keep lodgers in the other.

One titled family that did not believe the *Wohnungsamt* was in earnest did not heed the warning, and returned to town one day to find that wagons had taken away their belongings and their home was filled with laborers.

PAYING FOR HOMES IN HOURS INSTEAD OF MONEY

The billeting regulations and the law that was passed at the beginning of the war to prevent the raising of rents may have spared Vienna from riots, but they ruined the landlords, many of whom are now receiving only a few cents a month from their property (at the present value of the crown), while their tenants' incomes have increased many times.

In consequence, buildings are in bad condition and landlords are unable to make repairs; sometimes the tenants themselves club together to have a leaking roof mended. A landlord may not sell his property without a payment to the city of 55 per cent of the sale price.

Growing out of the housing shortage is the movement of the Land Settlement Societies, financed by funds from America and England, which has brought together 700,000 homeless of the middle and working classes throughout Austria. The settlers are building garden cities by coöperative labor, partly maintaining themselves by keeping pigs and poultry and raising vegetables. In payment they must give the Land Societies from 1,500

SIFTING SAND AT THE LAND SETTLEMENTS

Photographs by Josef Derbolav

SOLVING THE HOUSING SHORTAGE

Members of the Land Settlements building each other's homes on the outskirts of Vienna
(see text, page 83).

Photograph by Josef Derbolav

MAKESHIFT LODGINGS UNTIL THE NEW HOUSE IS COMPLETED

Photograph by Reiffenstein

A SUPERIOR TYPE OF TEMPORARY HOUSE ON THE OUTSKIRTS OF VIENNA

The father of this family is a woodcarver and gave the house touches of luxury that make it the envy of the neighborhood.

to 2,000 hours of free labor in three years.

As a result, thousands of women and children are working continually in several settlements on the outskirts of Vienna, earning their future homes. They make bricks, dig foundations, sift sand, and mix mortar. On Saturday and Sunday the men arrive and work from dawn till dark. The first settlement was founded by war invalids, on the imperial hunting grounds near Schönbrunn Palace, and is named "The City of Peace."

The park walls were pulled down for material with which to build the first houses. The bricks, each stamped with the double eagle of the Hapsburgs, will now help to shelter the human wrecks that fought in vain to preserve the great empire.

These invalids and their families are excavating rock, rooting out stumps by hand, and building a church and schoolhouse wherein to center their community life. Soon two thousand homes will stand where royalty once maintained its celebrated shooting-box.

While these settlements have adjusted the difficulties of a few thousand families, the city's most important problem has been left unsolved. The half million perishing members of the middle class, who have made Vienna famous for her university, clinics, music, and art, have gone to the wall in coping with the cost of living, whose curve for 1922 looks like one of Austria's mountains.

Being a capital, Vienna enrolls in its middle class persons of highly diverse occupations. It embraces field marshals, lawyers, doctors, university professors, admirals, civil servants, artists, scientists, clerks, teachers, officials, and many others whose source of income is a fixed salary, rents, or a pension.

MIDDLE CLASS LIVES ON COMMUNITY KITCHENS

While the wages of skilled labor have almost kept pace with the depreciation of the crown, the incomes of the middle class have dwindled away to almost nothing.

The rent law holds their old homes for them, and there they hide away from the sight of the city, creeping forth once a day to be fed in the community kitchens. They have long since pawned their trinkets and sold their furniture, linen, books, and clothing to second-hand dealers. The arrival of a baby among them is considered a catastrophe. A holiday, a new dress, a theater ticket are not to be thought of any more.

GINGERBREAD HORSE SELLS FOR MORE CROWNS THAN REAL TEAM BEFORE WAR

Every week new price lists are made up in the food shops and often posted in the windows, where they are studied by little knots of housewives with shopping-bags on their arms.

One morning recently the writer saw a middle-aged woman in tears before the price list. She had just the sum needed to buy a loaf of bread at yesterday's price. She said she was an officer's widow, who before the war had received a pension of 80 crowns ($16) a month. Now she has 100,000 crowns from the government, which at the present rating is about $1.25 a month. Her necessities are bread, which is 2,133 times as expensive as formerly, and coal, which has risen from eight heller a kilo to 900 crowns.

Meat is out of the question, having gone up 5,000 times. Neither can she afford sugar. A gingerbread horse coated with frosting costs 15,000 crowns—five times the sum her brother paid before the war for a team of real horses. Her income buys, therefore, just 15 loaves of bread a month. One meal a day in the community kitchens is keeping her alive.

The noonday meal, which the Austrians in coöperation with the American Relief Association gave daily to the middle class, was until recently an established part of Vienna's civic life. About four cents was charged for service, and those unable to pay this were given free tickets. School children were fed for a few cents a week and given medical attention.

The Health Department's report states that 90 per cent of the children under twelve years have symptoms of rickets from undernourishment, and that 50 per cent of those between twelve and six have tubercular infections. Having nearly perished, the child life of the city was salvaged by American relief organizations, which established hospitals, dispensaries, and health centers, while feeding and clothing thousands of adults.

Photograph by Kilophot

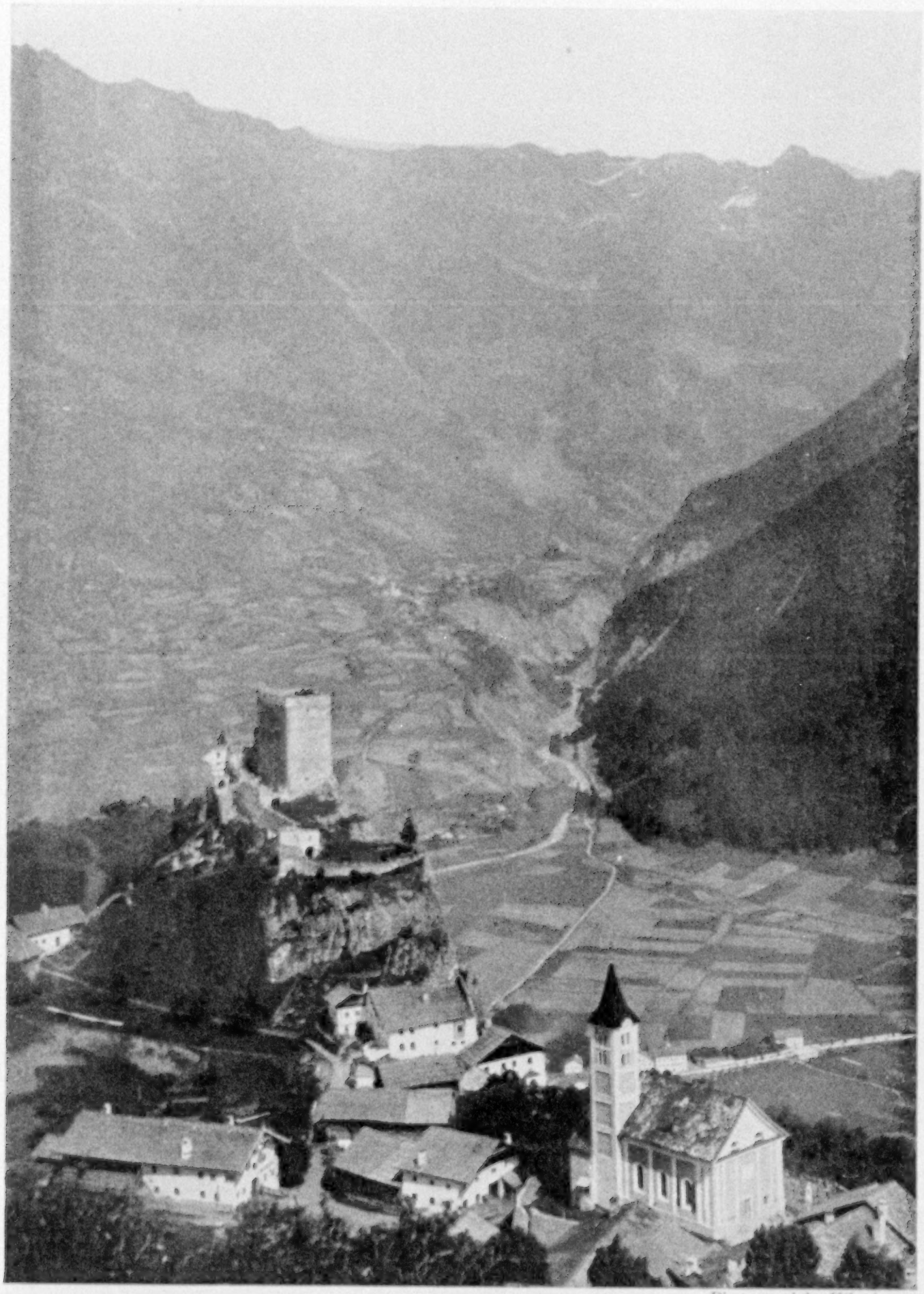
THE HOUSE OF PARLIAMENTS IN VIENNA

The main approach to this handsome government building, known as the Reichsrats-Gebäude, is adorned with bronze horse-tamers and statues of Greek and Roman historians. In front of the building is the Pallas Athena fountain, with the colossal figure of Pallas surrounded by numerous allegorical figures. In the background towers the Town Hall (see also page 100).

Photograph by Kilophot

THE STAIRS OF THE CAPUCHINS AT SALZBURG

In the picturesque city of Salzburg, some 200 miles west of Vienna, is the famous Capuchin monastery, approached by the Kapuziner-Stiege, or "Way to Calvary."



Photograph by Kilophot

VIEW TOWARD THE KAUNSER TAL, TYROL

This is one of the loveliest valleys in the Tyrol and is a favorite resort for walkers. Before the World War, automobiles were prohibited in this vale.

Photograph by Kilophot

GIRLS FROM THE WACHAU DISTRICT NEAR VIENNA

Before reaching Vienna, the Danube enters a long, narrow defile known as the Wachau, noted for its scenery and for its many medieval legends (see also illustration on page 93).

Photograph by Kilophot

TONGUE-LASHING IN TYROL

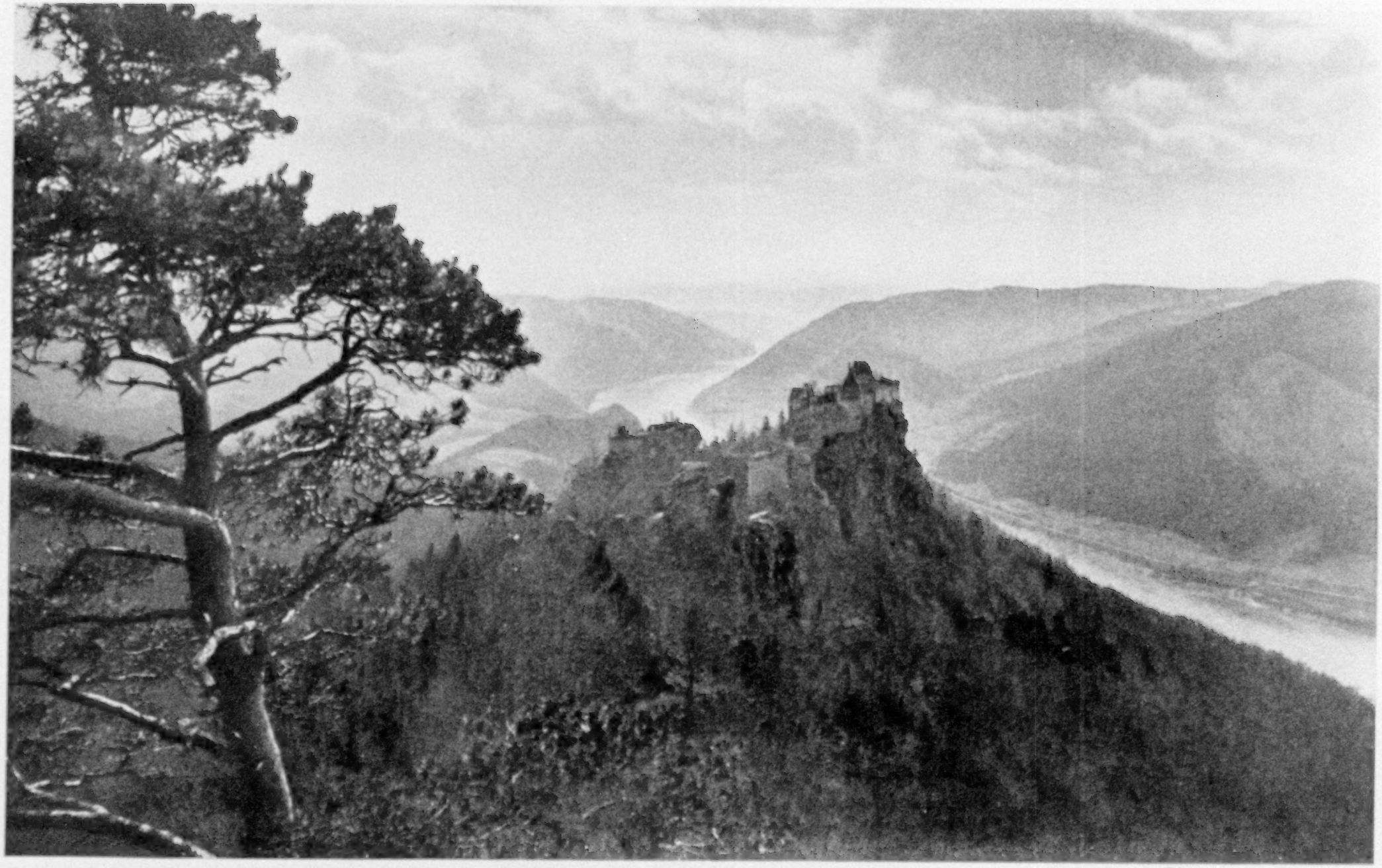
The Austrian peasant to the right is from the Oetztal district, the other is from Puster Tal, both in Tyrol.

Photograph by Dr. Fritz Benesch

THE SUMMIT OF GROSSVENEDIGER, IN THE HOHE TAUERN, TYROL

With an elevation of 12,010 feet, this is one of the loftiest peaks in Austria, but for the expert mountain climber it is easy to scale.

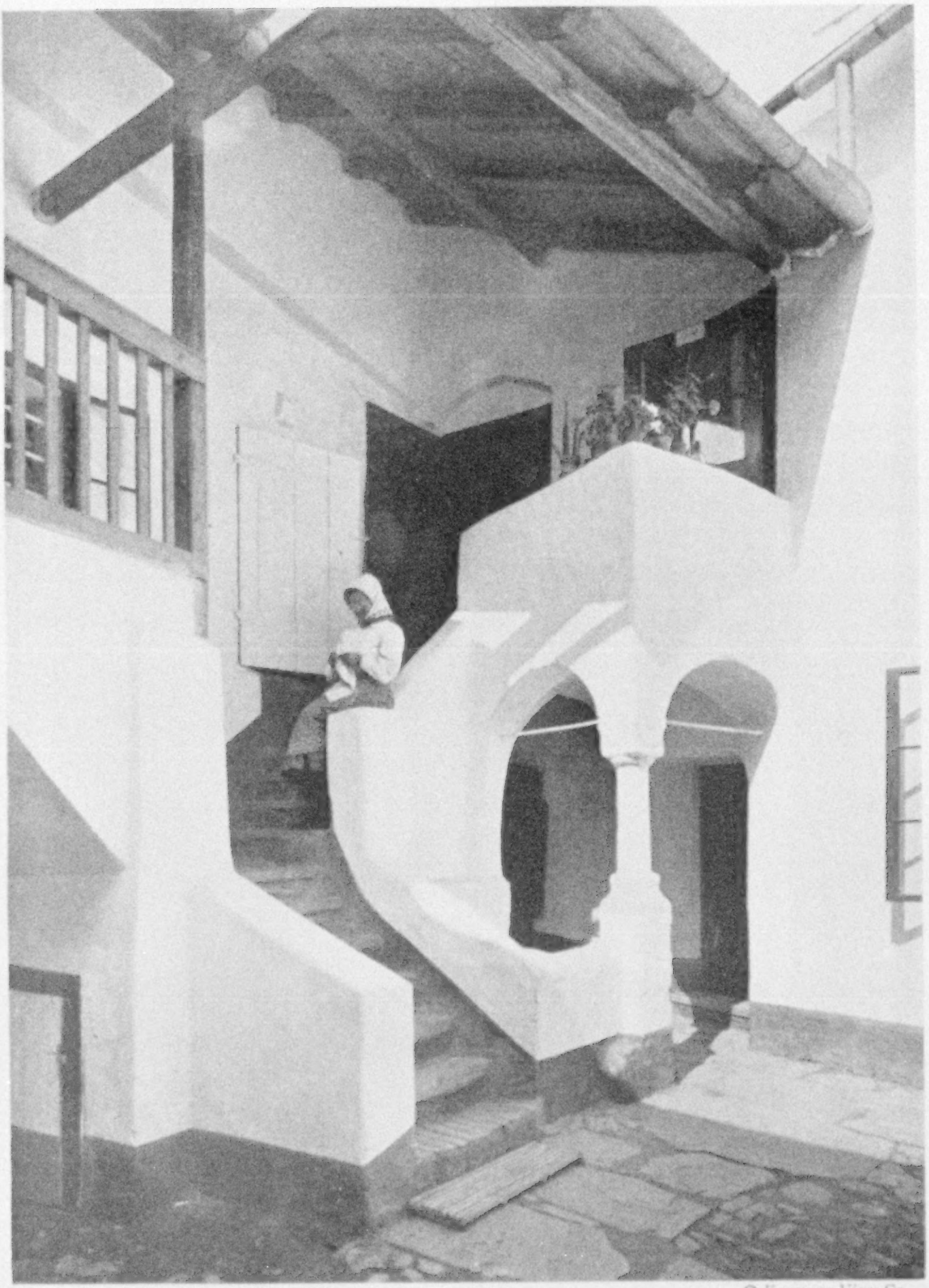
XUM



Photograph by Kilophot

THE RUINS OF AGGSTEIN, IN THE WACHAU, ON THE DANUBE

Standing at the head of the Wachau defile and commanding the river from an elevation of 1,000 feet, this was once a dreaded robbers' castle.



© Keystone View Co.

A MEDIEVAL BUILDING IN KREMS, ON THE DANUBE

Stein, Und, and Krems, three small towns of Middle-Ages aspect, stretching along the banks of the Danube above Vienna, have the appearance of one long, quaint city.

The separate mess maintained by the American Relief for the University Professors came to have the air and distinction of a club. Here the most brilliant men of Vienna were fed every day at the cost of a cent and a half. Famous scientists, archeologists, mathematicians, and historians, whose faces were the color of wax from undernourishment, gathered every noon for their one adequate meal of the day.

The dinner was based on Dr. Clemens Pirquet's new "nem" (nutritive elements in milk) system of calculating the number of calories necessary for a well-balanced meal. No matter what the menu might be, nothing was ever left on the plates. Bits of bread that were not eaten, perhaps, were carried away in the professorial pockets, against the hour when they once had their evening meal.

TALES OF DISTRESS AT THE PROFESSORS' MESS

The writer was a guest at the Professors' Mess last June, about the time the crown had fallen in a few days from 14,000 to 21,000 to the dollar. One newspaper was warning the city against rioting and another was advocating the sale of Austria's art treasures. Every one at the mess was talking of the disaster.

A celebrated chemist told those at his table that he had been obliged to give up plans for a holiday picnic for his wife and children because now it would cost fifteen cents instead of ten for the luncheon and carfare. Another professor arrived and was hailed by the tables because he had just received a suit from a friend in America. It was too small, but that did not matter. The man's other suit was patched and threadbare from seven years' continuous wear. A new suit would have cost the price of half a wagonload of coal.

A professor of ancient history was discouraged because the street-car fares had gone up from 80 to 150 crowns. He lived in a suburb four miles from the University, and this increase of his budget would force him to get up an hour earlier and walk down town.

An under professor of philosophy announced that a well-known lawyer was about to solve his economic problem by taking a job as chauffeur. The consensus of opinion seemed to be that the man was lucky to have found such a job, as there are only 5,474 passenger cars in Vienna. "At least he will not have to live on $20 a month, as I do," said the chemist.

"You are fortunate; I make only $11," said the under professor. "See my boots; and I cannot buy new ones this winter." He thrust out his feet and revealed shoes tied to his feet by extra shoelaces. They had been mended and remended many times until the leather would no longer hold the stitches.

CITY FOLK GO ON FORAGING EXPEDITIONS

The hunger of many active persons is not satisfied with one meal a day. Yet food prices in Vienna have mounted to such proportions that they would be considered expensive according to New York standards. Butter is 60 cents a pound, sugar 13 cents, coffee and tea are 50 cents, and milk for children over a year old is not obtainable at any price.

That is why thousands of the hunger-ridden population go on foraging expeditions every Saturday and Sunday, walking great distances with packs of goods on their backs to exchange for food. The peasants are not often willing to accept worthless crowns for their products. The Viennese must bring them instead bolts of cloth, aprons, stockings, shirts, or some coveted ornament for the women. These are exchanged for flour, lard, milk, wheat, eggs, potatoes, and butter, which must be carried all the way back to the city in their knapsacks (see page 81).

FLUCTUATIONS IN EXCHANGE MAKE BANKS HIVES OF INDUSTRY

Calculations in Austrian currency involve astronomical figures, and the inflation of the currency and speculation have resulted in increasing the work in banks until this employment is the largest in the city. Demands on banks are enormous, and Vienna now has twenty incorporated institutions and more than two hundred private ones. Luncheon is served to the employees of banks at cost price, since the managers have learned that undernourished men and women cannot do efficient work.

Besides the banks, there are hundreds

Photograph from Solita Solano

SOME OF THE FIVE HUNDRED CHILDREN SENT TO ENGLAND TO RECOVER FROM THE EFFECTS OF UNDERNOURISHMENT

Photograph by Reiffenstein

CHILDREN LEAVING FOR HOLIDAYS IN FOREIGN COUNTRIES

Thousands of young Viennese have been taken into homes in Switzerland, Holland, Denmark, Norway, Sweden, and England by charitable persons, who have given them eggs, milk, and nourishing food.

Photograph from Solita Solano

A HOMEMADE FAMILY EQUIPAGE

Baby carriages now cost hundreds of thousands of crowns, so very few are seen in Vienna; this baby's father is a carpenter and built the wagon in the picture from an old packing case and painted it bright blue; but most babies are carried in their mothers' arms these days.

of small *wechselstuben* where dollars, Czechoslovakian crowns, lire, or marks are exchanged for crowns, according to the daily reports from the Exchange. These little money-changers, who have made fortunes from the collapse of the crown, are always surrounded by knots of anxious Viennese, who come to peer at the quotations pasted on the windows or to ask at the counter for news of their country's condition. The daily value of the crown is an unfailing index.

It was the children of these money-changers and the food profiteers who occupied the flower-decked carriages drawn by two horses during a church festival last June. Many of the Viennese who had stood in line for hours in order to save a cent on a loaf of bread were angry and discouraged at seeing 100,000 crowns spent on a carriage and flowers.

SHE DOES WITHOUT COAL, BUT MUST HAVE A MAID

Many members of the fallen aristocracy cannot be convinced that the present state of things is to continue. They meet among themselves and talk vaguely of a new régime, a dictator of their own class, who will restore their lands and social position. The members of one titled family, whose remaining capital is in Italian lire, are living in comparative grandeur. They keep an electric car and three servants and give their friends luncheon parties at which seven courses are served. In six months the lire will be spent, but they have made no plans for the future.

In another palace near by a baroness is living, surrounded by valuable paintings and first editions which she refuses to sell. Last winter she had no money to buy coal and was obliged to remain in bed during zero weather; but a maid brought luncheon to her room. To give up a maid and buy coal with the wages paid was not to be considered.

Knowing that second-hand dealers can only pay a fraction of the real value of jewels and furs, curious methods are often used to bring such articles to the attention of American and English travel-

Photograph by Kilophot

ONE OF THE ELABORATE FOUNTAINS ADORNING A WING OF THE IMPERIAL PALACE

The colossal sculptured figures are by Helmer and signify "The Power on Sea."

ers. A hotel porter follows guests into the elevator to ask if the *gnädige Frau* will be so kind as to glance at a very superior emerald that must be sold at once by a relative of the royal house. A waiter brings a superb ermine cape with the breakfast tray and suggests that the kind, indulgent American husband buy this unheard-of bargain for his beautiful lady. A woman clerk in a tobacco shop offers an Egyptian belt of silver for which her client asks but a few dollars.

COFFEEHOUSES STILL WELL PATRONIZED

The famous coffeehouses of Vienna, where the population repairs, even in business hours, for newspaper reading, letter-writing, chess, or gossip, are well patronized. The Austrian cannot change his spots, even when national calamity is upon him. He still lounges half his time away, although his allowance of coffee and *schnapps* is cut down and he can no longer be generous to the waiters.

In a little restaurant near the Ring is an old Hungarian waiter who has watched the city pass the door for fourteen years. "Now the only time I see any of my old customers is when they go in there," he said, and pointed across the street to one of the community kitchens. "We waiters are having hard times, too. Before the war a waiter was a cavalier. Now we make twenty or thirty cents a day."

VIENNA A GREAT MARKET FOR ART

Vienna has always been to the south of Europe what Moscow was to the north—a great studio and market for art. The magnificent galleries, filled by the Hapsburgs, have drawn students from all over the world. The shop windows still display luxurious whimsicalities of modern art in whose invention the native craftsman excels. Exquisite ceramics, dyed silks, wooden articles, and tooled leather have been Viennese specialties.

The drama and music have had the same exuberant quality as the art of the city. Many light operas have made fortunes for American producers and Viennese composers. Franz Lehar is living to-day in what he calls the house the

Merry Widow built. Grand opera, performed in one of the most magnificent opera houses on the Continent, has always been well staged, enthusiastically attended, and its singers coaxed to America. The theaters have had fine traditions and scarcely a month passes without the production of one of Shakespeare's plays.

The famous night life of Vienna which begins at 7 o'clock, when the theaters and operas give their performances, used to continue afterward in the sidewalk cafés, culminating in a carriage ride around the Ring. Now it has lost its sparkle, and the diamonds blazing on a few profiteers furnish the only bright lights after 10:30.

Cabs no longer rattle along with ordinary pleasure-seekers. Feed is so expensive that a carriage with two horses costs more than a motor. One old cabman declared the only way he could make money on his horse would be to sell him to a butcher, but that such a profit was forbidden him by his affection for the beast.

Photograph by Kilophot

CANOVA'S MONUMENT TO MARIA THERESA'S DAUGHTER

A lofty marble pyramid, with allegorical figures, in memory of Maria Christina, who died in 1793, stands opposite the entrance to the Augustiner-Kirche (court church).

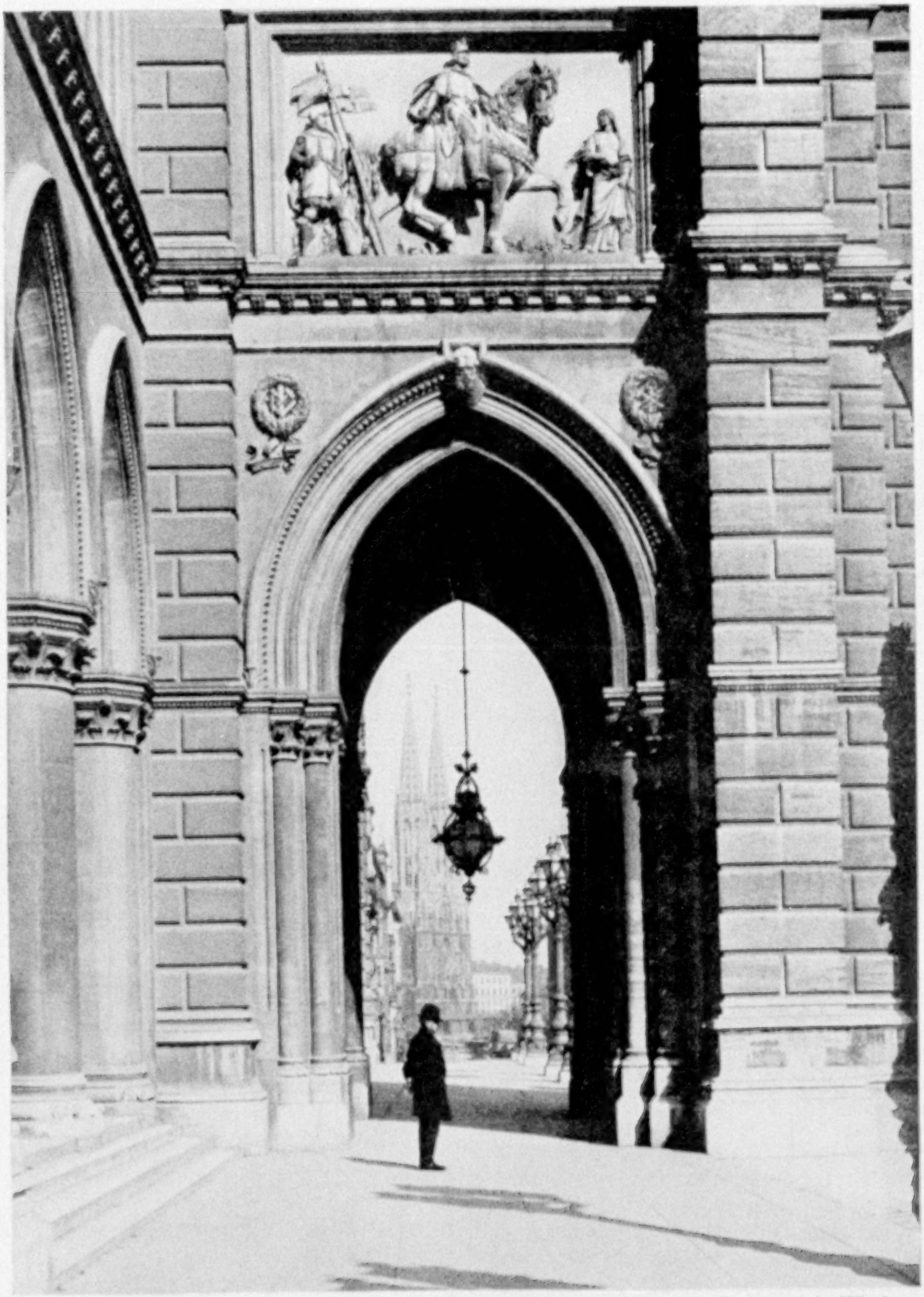
ONE FEATURE OF THE EMPIRE'S SPLENDOR REMAINS

Only one feature of the old Hapsburg régime remains to-day to tell of a former empire's splendor. This is the Spanish Riding School, the only one of its kind in the world, which is still housed in the stables of the old Hofburg Palace.

This riding school was brought to Austria by Karl VI, after he had been put out of Spain in his other rôle of Carlos III. Founded in 1729, it was kept up for the pleasure of the royal family, who gave private performances for their friends, but never admitted the public.

Now there are only 28 horses left, magnificent stallions, who go through their paces five or six times a year, while the newly rich of Vienna applaud from the royal boxes.

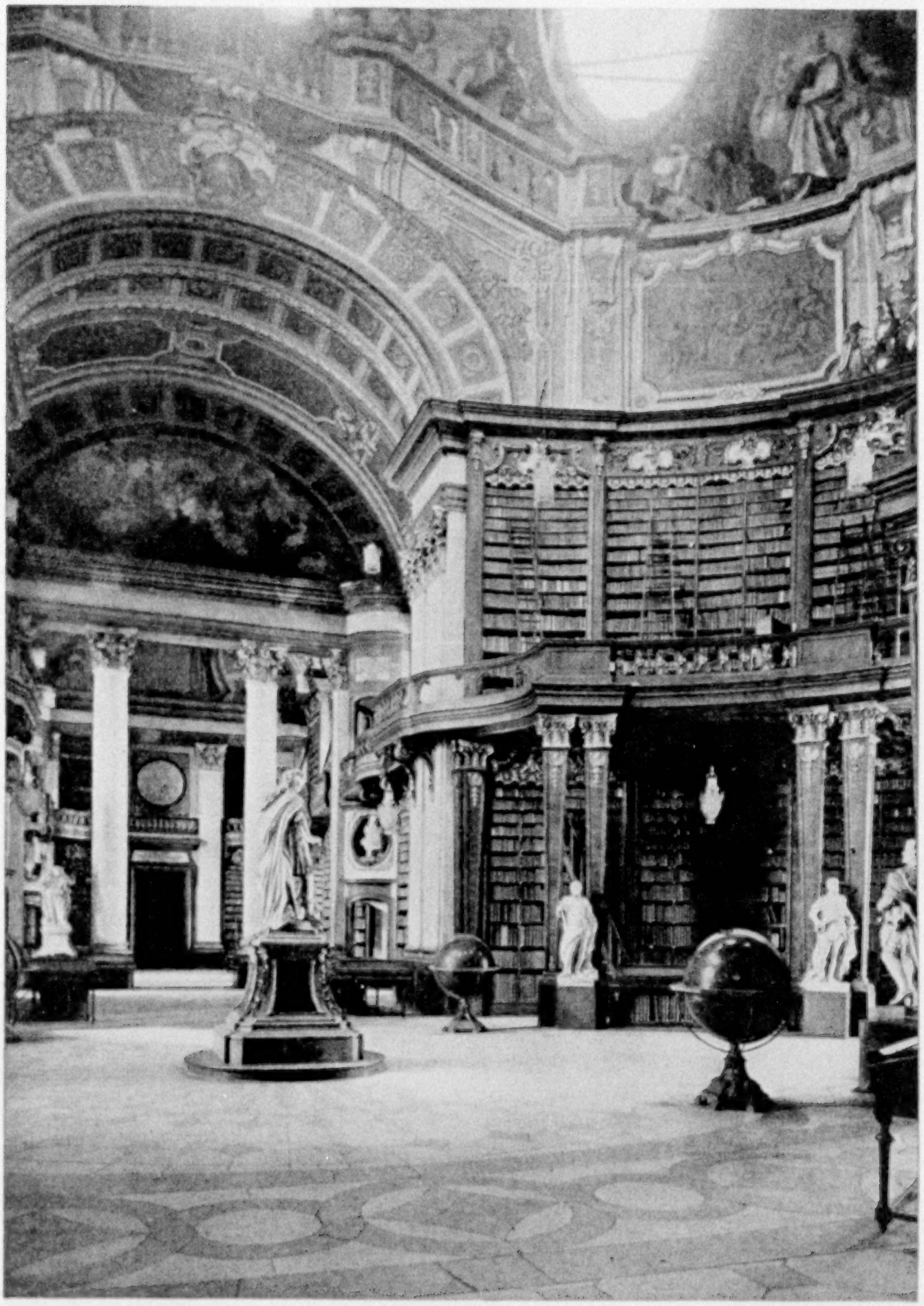
The Socialist Democrats were loath to continue this tradition, but the chief riding-master convinced them that his institution was something like a museum and therefore should come under the classification of art. This argument won the day.



Photograph by Kilophot

VIENNA'S VOTIVE CHURCH SEEN THROUGH AN ARCHWAY OF THE TOWN HALL

The new Rathaus, or Town Hall, built in 1872-82, is one of the city's most imposing edifices. Its massive tower rises to a height of 328 feet (see also illustration, page 87).



Photograph by Reiffenstein

A FEW OF THE MILLION VOLUMES IN THE LIBRARY OF THE IMPERIAL HOFBURG

The Great Hall of the Hofburg is considered one of the finest library halls in the world. Many of its 33,000 manuscripts are priceless.

Austria was at its greatest when Maximilian I, by clever alliances through his grandchildren, secured Spain, half of Italy, and the Netherlands. To-day the nation's territory is only twice that of Switzerland, and her population has been reduced from 55,000,000 in its dual-monarchy days to 6,000,000. Moreover, 39 per cent of her area is covered with forests—a percentage that is exceeded only in Finland and Sweden. Wood, therefore, is the most important export and the only raw material, except magnesite and iron ore, that can be sent out in large quantities.

Before the war, the empire was one of the greatest wood producers in Europe. To-day the largest of the hardwood forests lie beyond her new borders, out of reach, like her former coal mines.

In proportion to her area, Austria is the second country in Europe as regards available water power. Her unnumbered sites would be capable of giving more than 4,000,000 horse power if the $226,000,000 necessary for development could be raised. At present Austria's annual coal bill amounts to $90,000,000, and the country is being run on one-third of the coal needed. This shortage has brought about stagnation, and unemployment doles must be paid out by a government already impoverished by the immense sums being paid to state employees, many of whom are idle. Ten per cent of the population is said to be supported by state funds.

MONEY PRESSES CONTINUE TO RUN AT FULL SPEED

Having to import most of her food, Austria continues to consume more than she produces, and makes up the deficit by eating her capital—partly by selling property to foreign countries (Stinnes, the German head of many trusts, has recently bought the richest iron mine in all Europe) and partly by printing worthless paper money.

Although this paper money has reached a total of unnumbered billions of crowns, the presses are still turning, currency is falling, prices are rising, workmen are demanding more wages to meet the new conditions, and the cycle goes on.

The state railroads are running under a yearly deficit of billions of crowns; yet 60 per cent of the passengers travel free or at a reduced rate; passes are issued to all railroad employees and their families, the widows of former employees, deputies to Parliament, journalists, and government employees and their dependents.

VIENNA'S GREATEST ASSET, HER GEOGRAPHICAL SITUATION

In spite of Vienna's precarious situation to-day, she has one asset which nothing can destroy. The city stands at a point where the trading route from the Baltic to the Adriatic crosses the great waterway of the Danube. At this logical center of commerce and shipping, grain and cattle from the east pass industrial products from the west, and here seven great railroads converge that connect Vienna with all of central Europe. No matter what internal disorders may occur, it seems unlikely that the city can be wiped off the map completely.

A study of the states of the former empire will explain why Vienna was its nerve center and the natural capital of these small countries.

Political changes have not altered the city's geographical situation, and the Danube still flows to Vienna through the opening in the mountain ranges, bearing ships and their cargoes for distribution in eastern Europe. Vienna is still and must remain a sort of inland seaport on the largest commercial waterway in Europe (except the Volga in Russia).

Vienna's position on the map may prove in time to be her salvation.

Notice of change of address of your GEOGRAPHIC MAGAZINE *should be received in the office of the National Geographic Society by the first of the month to affect the following month's issue. For instance, if you desire the address changed for your March number, the Society should be notified of your new address not later than February first.*

THE MAGIC BEAUTY OF SNOW AND DEW

By Wilson A. Bentley

With Illustrations from Photographs by the Author

WATER plays an all-important and most beneficent part in Nature's plan. Numerous bulky volumes might be written telling of its many rôles in nearly all the activities occurring upon the Earth. It might properly be called the "life-giving fluid," for life in any form is not possible without it.

However profoundly one may be impressed by the vast tasks that water performs, one is almost equally impressed and amazed at the marvelous beauty and diversity of its forms—in clouds, snow, frost, ice, dew, rain, rivers, waterfalls, lakes, and glaciers. And these are not only beautiful in themselves, but many of them, as snow, frost, and dew, collect upon and beautify various natural objects.

The dew and hoarfrost add rarest loveliness to vegetation and to various objects, while a snowfall changes the aspect of Nature over vast areas, imparting chaste beauty to forests, mountains, and plains.

WATER FORMS ARE DEPENDENT ON TEMPERATURE

The form that water assumes, whether fluid or solid, depends largely upon its temperature. Water molecules possess poles, negative and positive, which tend to draw them together in certain alignments forming solids (crystal forms); but most of them (all those forming fluid water) are so disturbed by heat that they dart about rapidly among themselves, making it impossible for them to unite.

But when they attain a relative degree of quietude, under conditions of cold, their poles draw them together, and they remain fixed, pole to pole, in regular order. The number and arrangement of the molecules in crystals determine their form, whether hexagonal, pentagonal, or otherwise.

A crystallographic law decrees that crystals which grow rapidly—the branching snowflakes, for example—tend to assume branching forms; conversely, those that grow slowly, in a greater degree of cold, tend to assume solid forms.

Dew is one of the most common forms of fluid water formation, though jointly with the hoarfrost it is one of the least as regards quantity. It is largely a nighttime phenomenon, because only then can the water molecules in the air become quiet enough to gather and remain in a "swarm" upon vegetal and other objects.

The dew forms in such a gentle and unobtrusive way that it fails to impress the student, as do many other water forms.

Although dewdrops, like raindrops, lack variety of form, they exhibit much variety of arrangement on plant leaves and other objects. The myriads of opalescent, iridescent drops sparkling over meadow and hillside of a dewy morning create one of Nature's loveliest effects. Dewdrops collect beautifully upon grass blades, strawberry and clover leaves; but the dew-laden geometrical webs of the garden spider are lovely beyond description and form the masterpieces of dewy art (see pages 110 and 111).

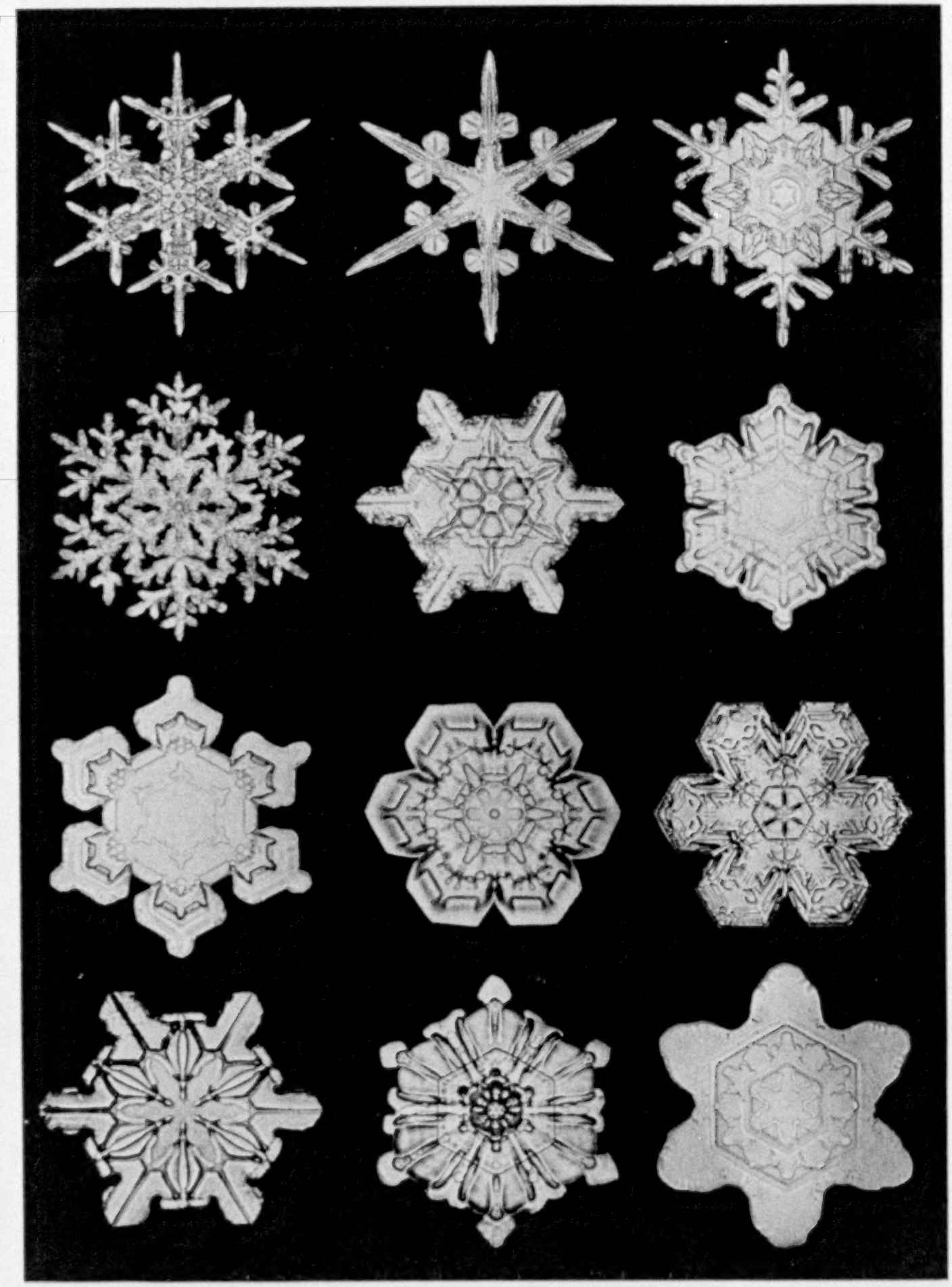
Hoarfrost is, perhaps, the least, as regards quantity, among the main divisions of water forms; yet it provides a world of beauty and diversity. It forms in the open on cold, calm nights, when the temperature goes below the freezing point of water. When the deposits are copious, all outdoor Nature is converted into a fairyland rivaling that produced by an ice storm.

Yet the real masterpieces of the frost are wrought indoors in the winter time, upon our window-panes in cold rooms, where all can see and admire them. The tiny molecular artists create an infinite variety of shapes, suggesting trees, ferns, coral, lace, starry firmaments, tropical forest effects, and castles (pp. 108-109).

SNOW CRYSTALS

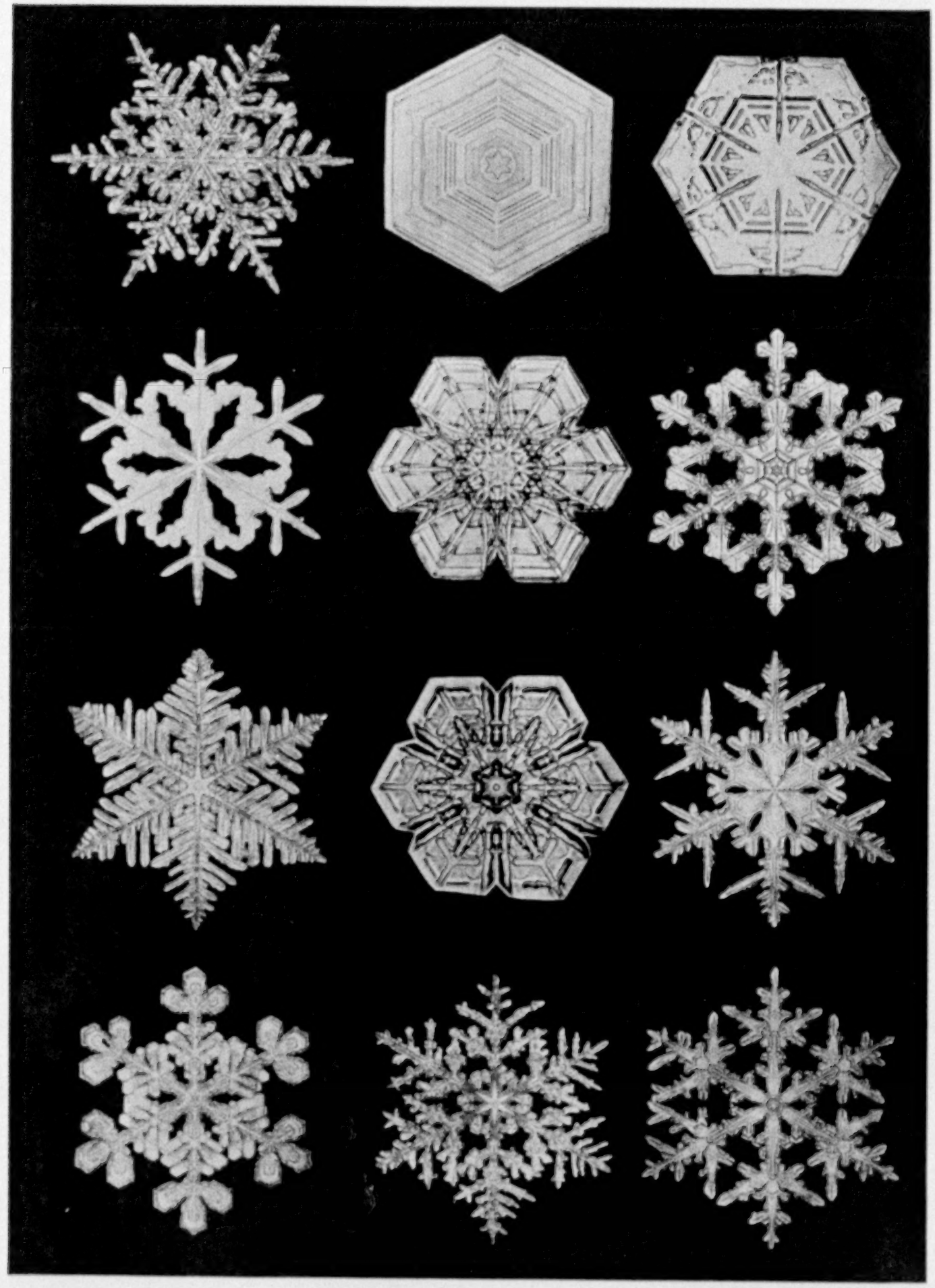
Of all the forms of water, however, the tiny six-pointed crystals of ice called snow, that form in such quantities within the clouds during storms, are incomparably the most beautiful and varied.

XUM



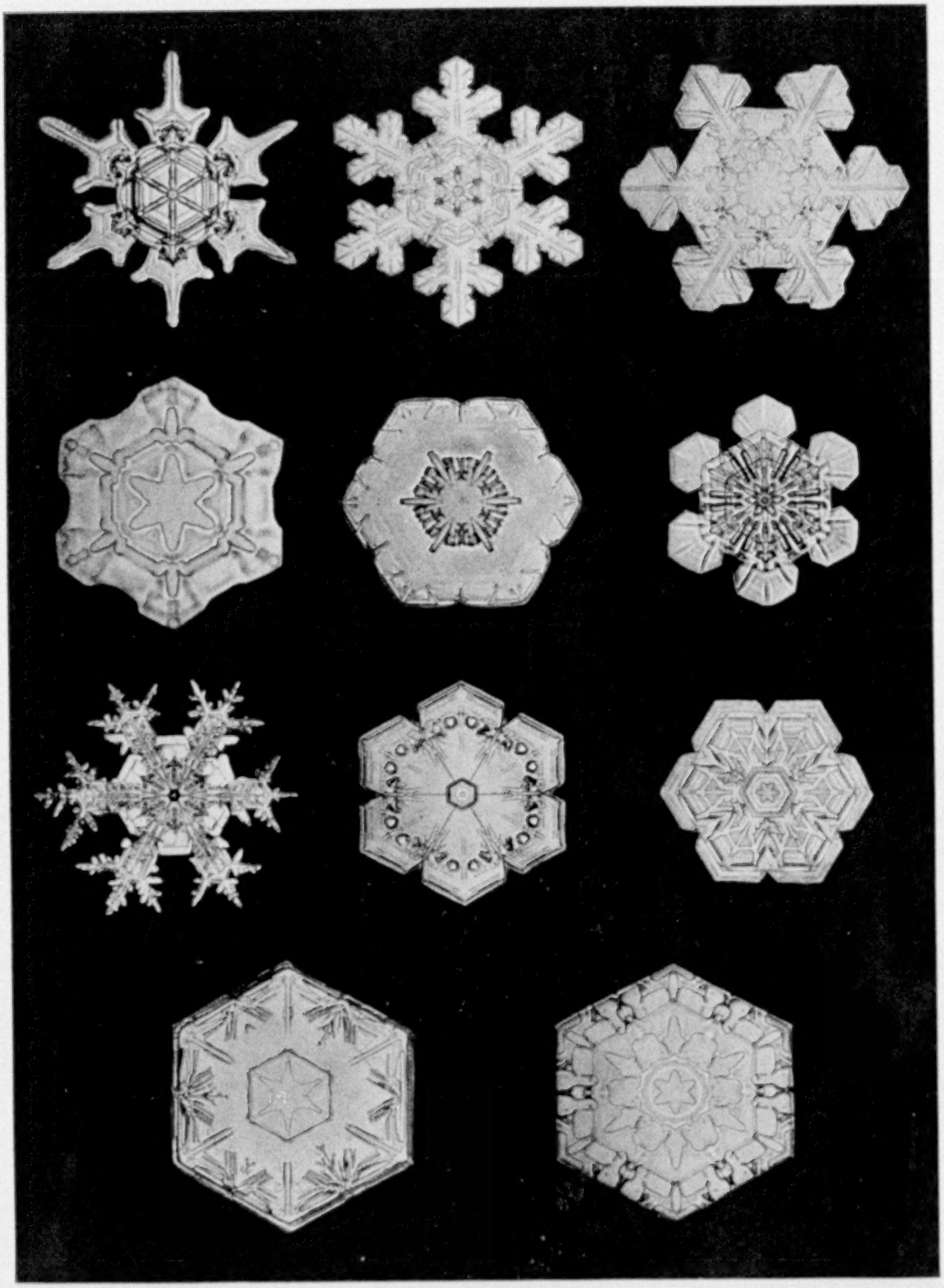
SNOW JEWELS COLLECTED BY THE CAMERA

Snow crystals must be photographed practically out of doors in a low temperature. One method is to catch the snow flake on a piece of soft black velvet. The camera is then placed over it, and the dark, contrasting background shows up the crystal in all its beauty. Details of outline are made clearer by cutting away the image from the photographic film. The crystals shown on this page are magnified from 8 to 30 diameters.



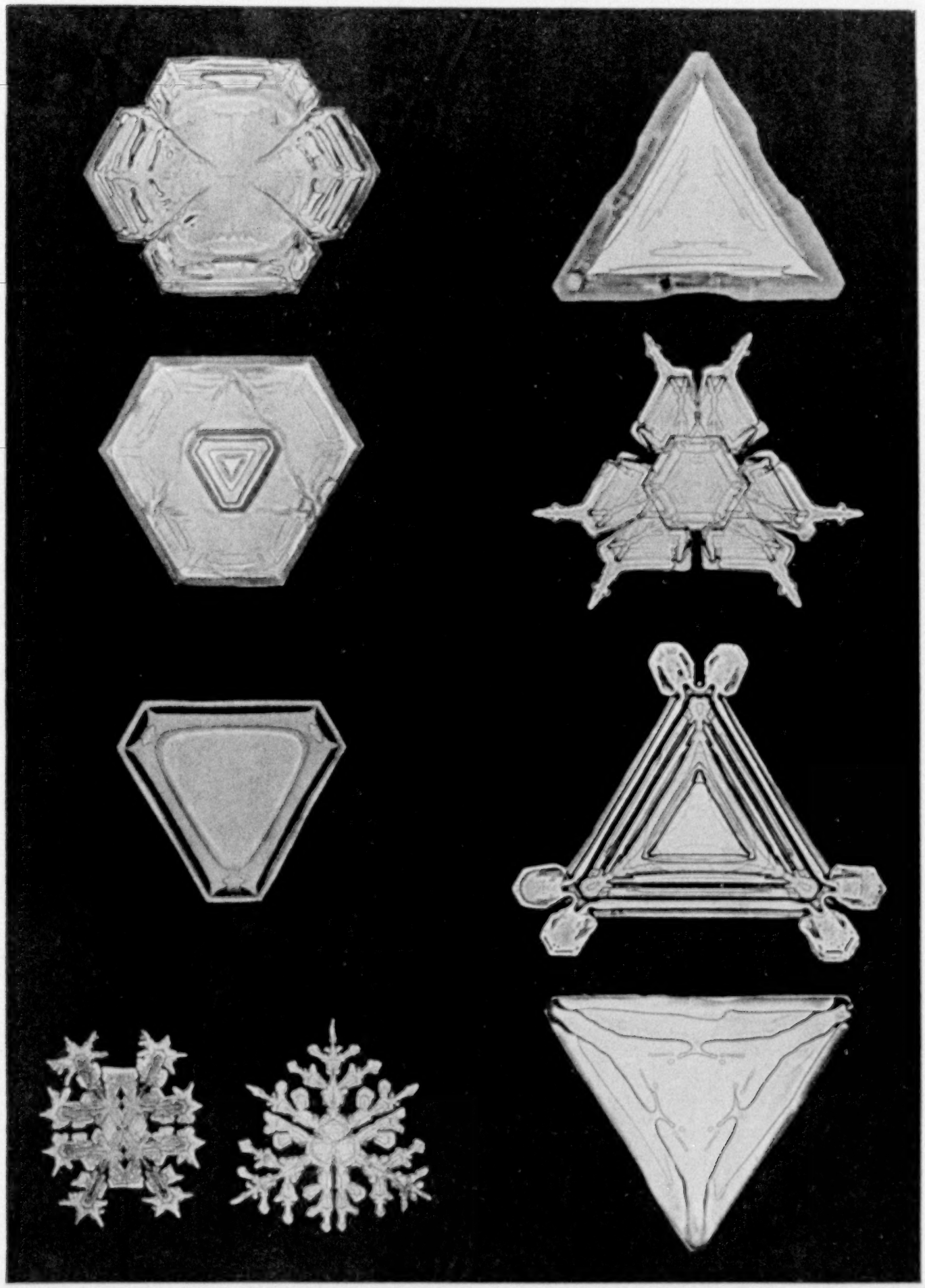
THE TREASURES OF THE SNOW

The delicate tracery of many snow crystals is brought out in greater detail by photographing them on a glass slide, with light transmitted from below by means of a mirror. The middle crystal in the second row from the top was photographed in 1886 and was the first specimen of outstanding beauty to be secured. The middle crystal of the top row is a remarkable "spider-web" form. The specimens on this page are magnified from 8 to 60 diameters.



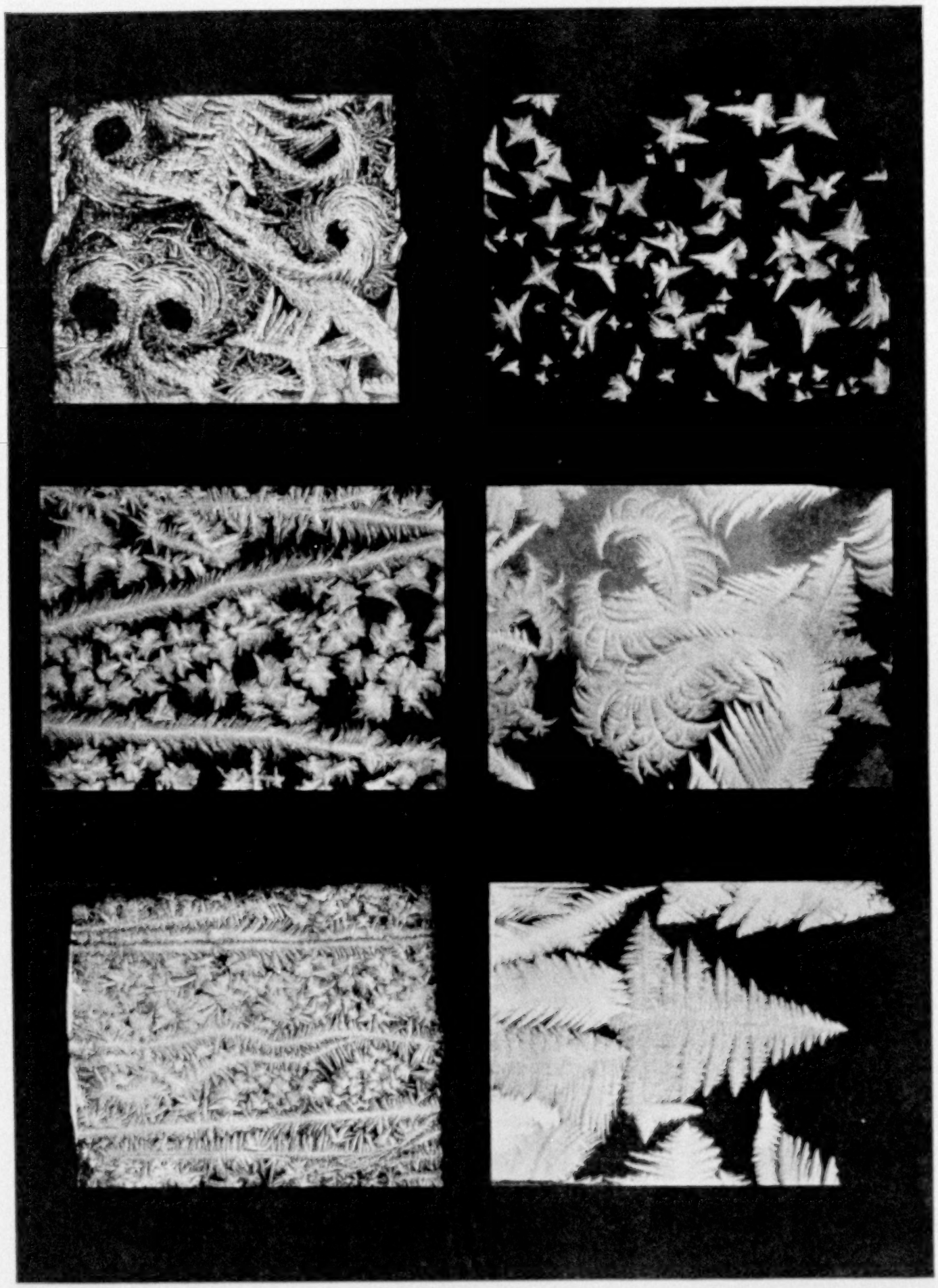
SOLID AND BRANCHING CRYSTAL FORMS OF RARE LOVELINESS

Jewelers, art craftsmen, metal workers, and silk manufacturers frequently find inspiration for art designs in the varied and symmetrical forms of snowflake gems. These flakes have been magnified from 10 to 50 diameters.



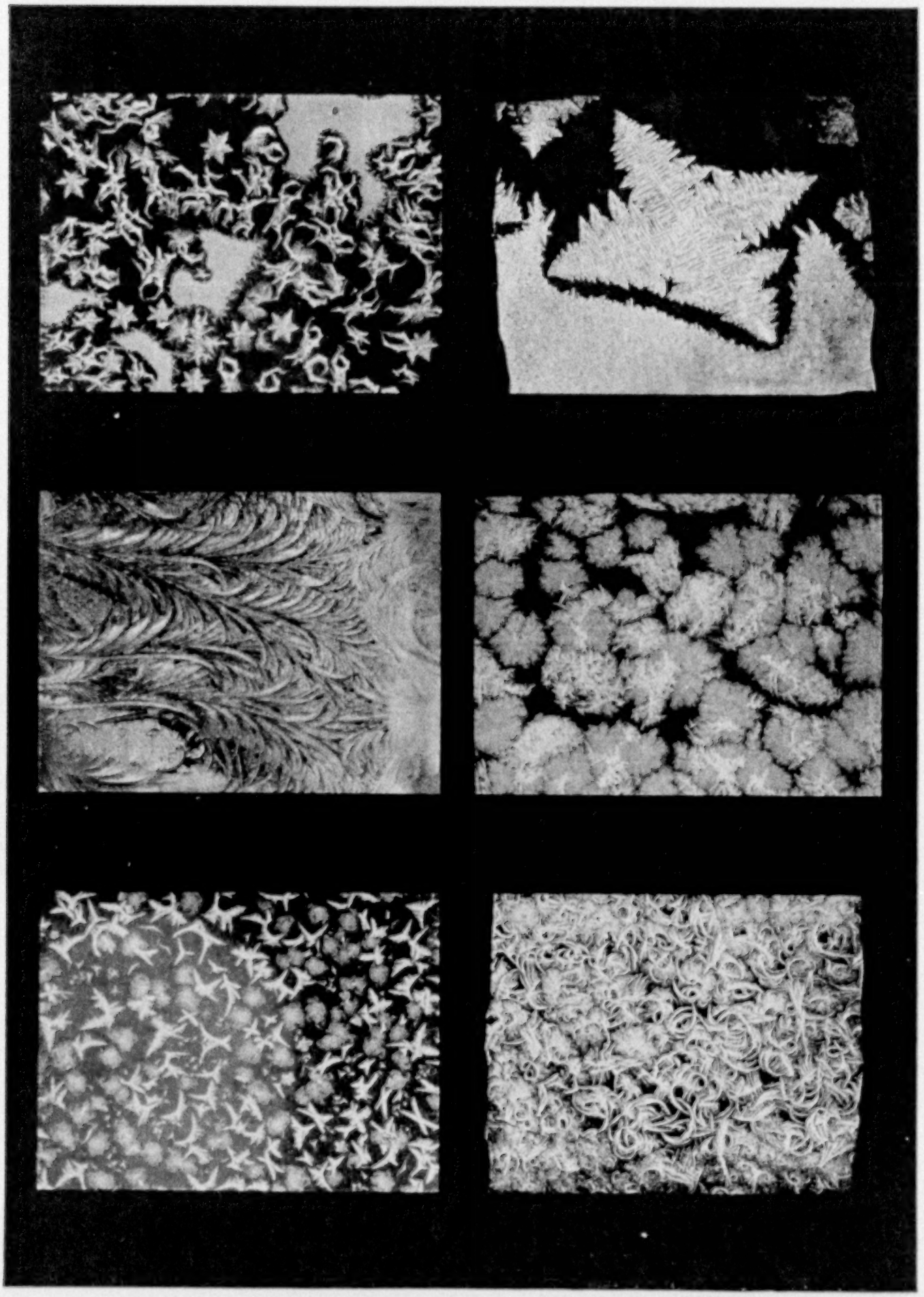
UNUSUAL FORMS OF SNOW CRYSTALS

The natural form of the ice (water) crystal is the triangle, but such forms in snow are of rare occurrence, appearing only during very cold temperatures. The magnification of the crystals reproduced on this page range from 20 to 40 diameters.



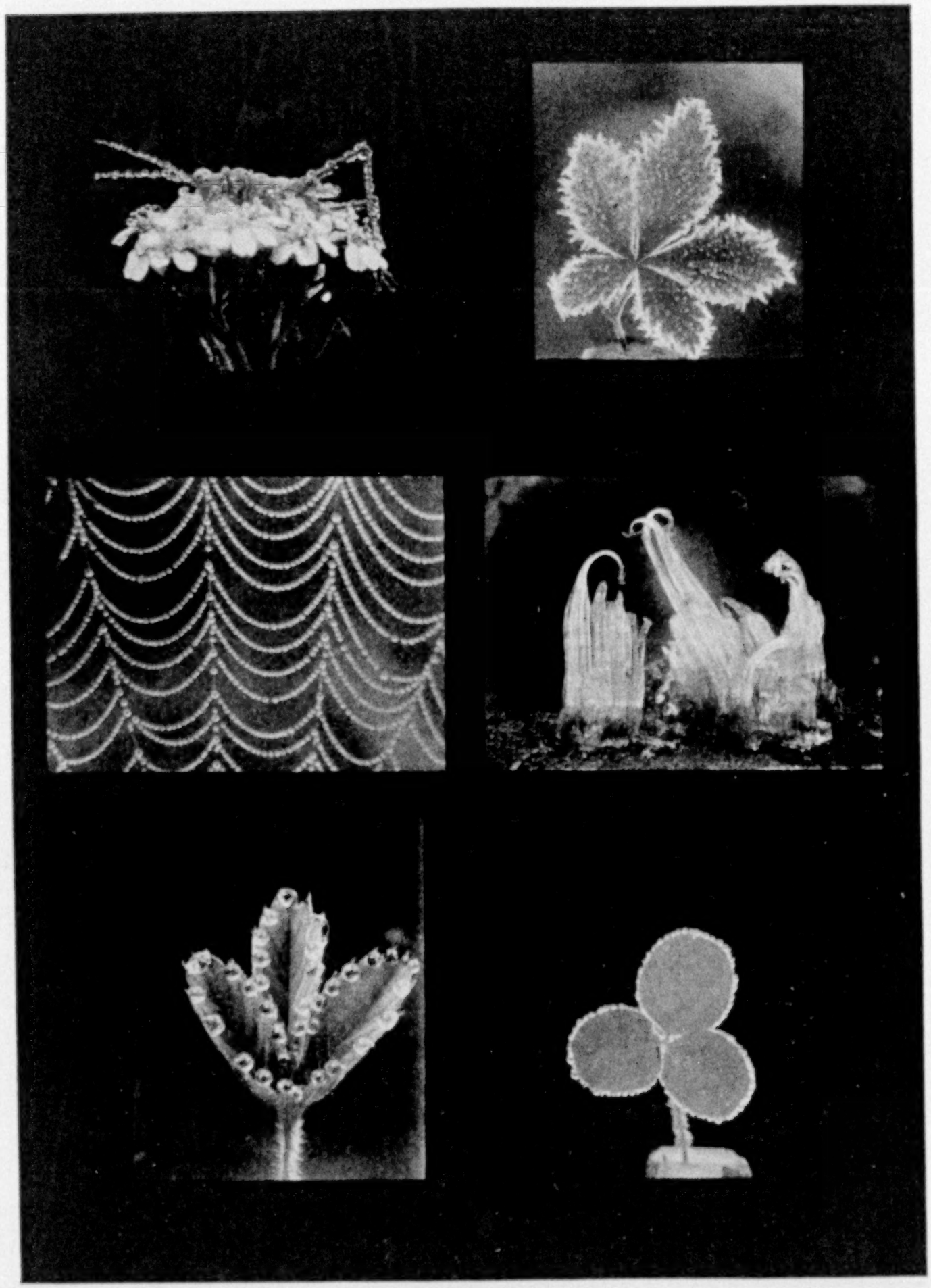
WINDOW TRACERY OF JACK FROST

This consummate artist of Nature creates his real masterpieces on window-panes in cold rooms. A variety of shapes suggest trees, ferns, coral, lace, starry firmaments, tropical forest effects, and castles. These forms are magnified from two to four diameters.



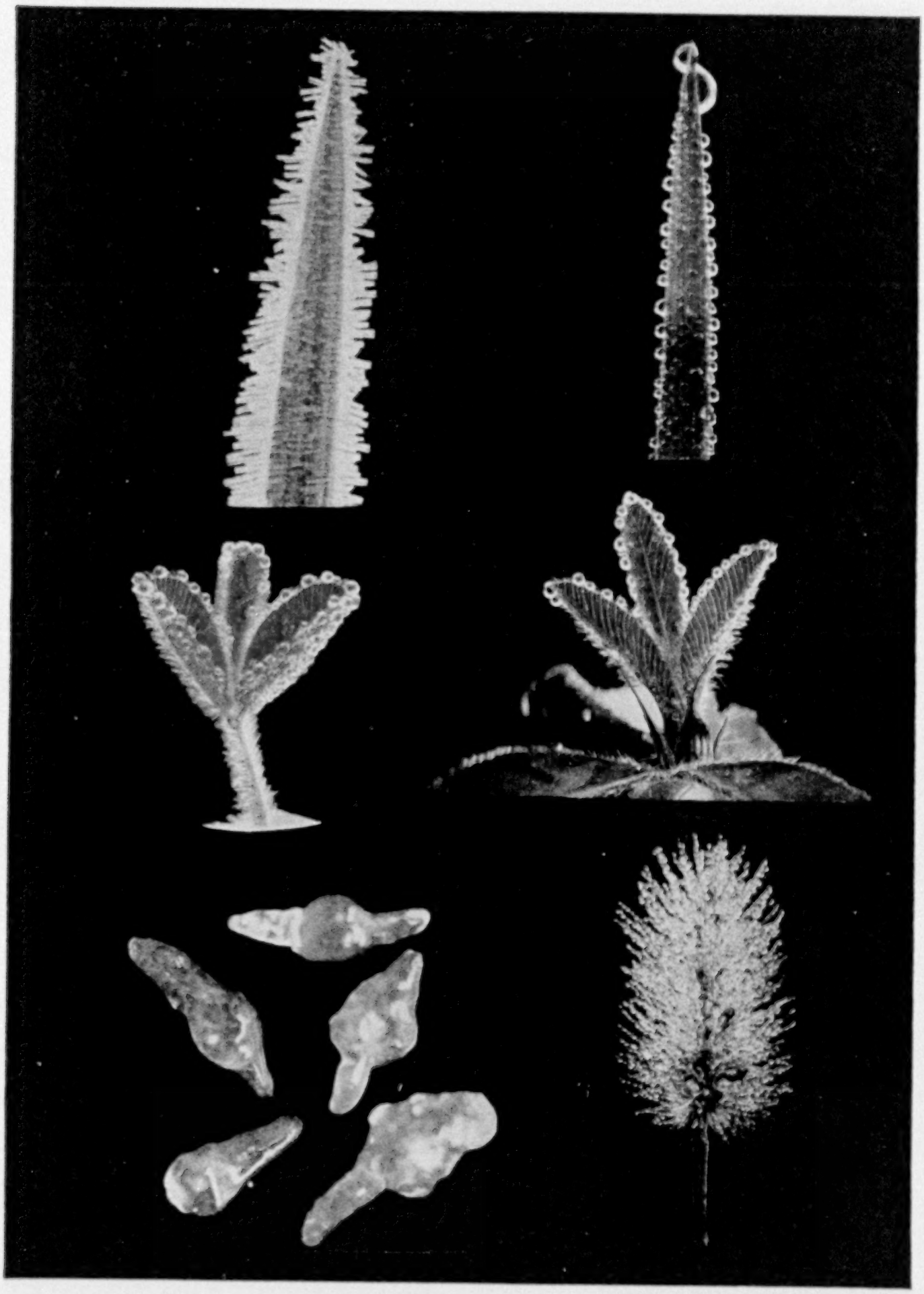
IMAGES PRODUCED BY WINDOW FROST AND WINDOW ICE

The image in the upper left corner is the unusual "snowflake" design; immediately below it is an example of window ice. In the lower right corner Jack Frost seems to have shaken out his feather bed. The upper right illustration is magnified four diameters; the others, with the exception of the window ice, which is greatly reduced, are natural size.



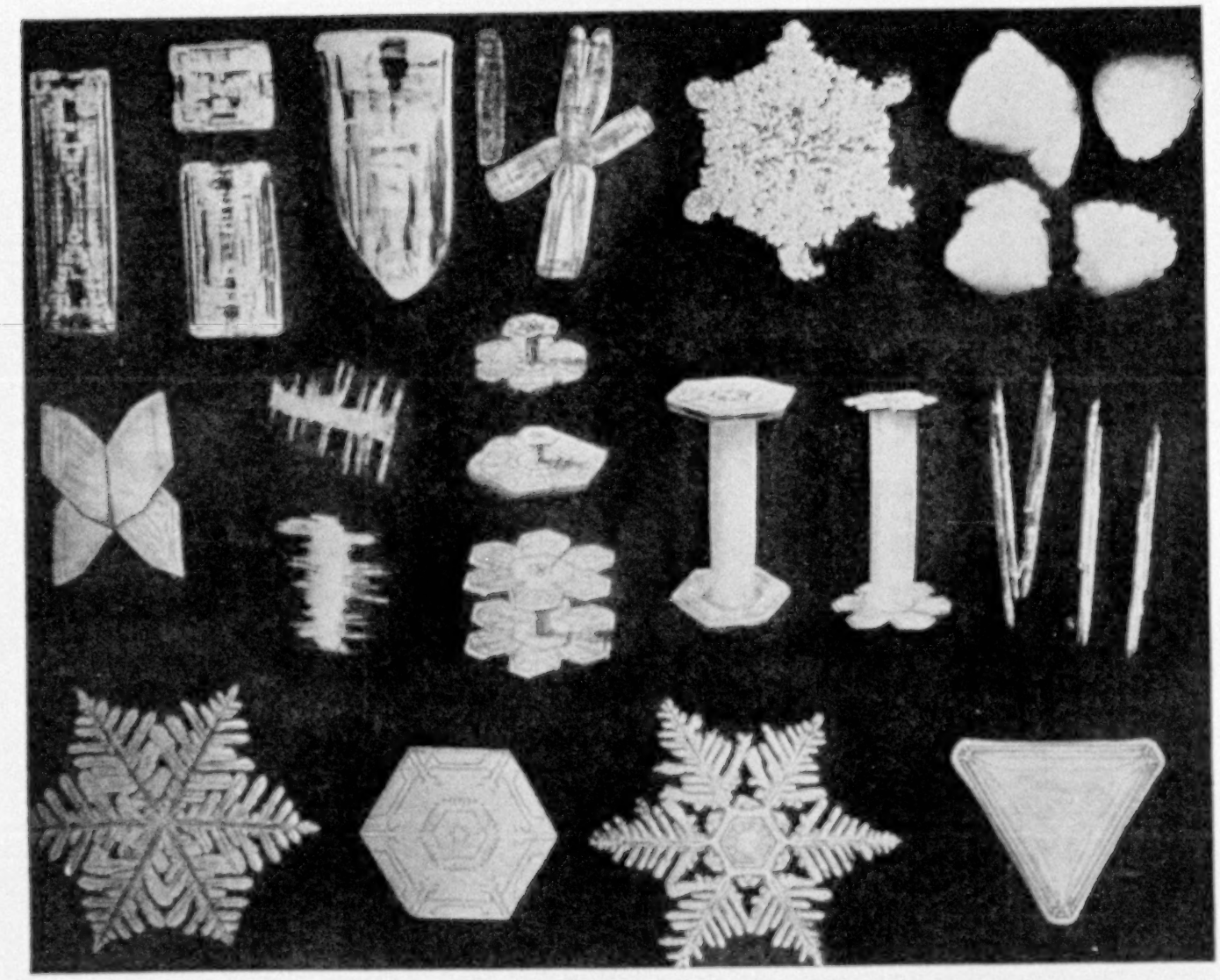
MAGIC WROUGHT BY DEW AND ICE

Dew has transfigured a grasshopper (upper left); hoarfrost has wrought its artistry on a blackberry leaf (upper right); dew has spangled with glistening gems a spider's web (left center), a strawberry leaf (lower left), and a clover leaf (lower right). At the right center are ice columns in peaty soil. The dew pictures are natural size; the others are much reduced.



ART FORMS OF DEW, FROST, AND HAIL

The upper left picture shows hoarfrost on a spear of grass. The lower left image shows rare forms of hailstones (natural size). The other illustrations show how dew gems a blade of grass, clover leaves, and a head of caterpillar grass.



THE PRINCIPAL TYPE FORMS OF SNOW CRYSTALS

The first row shows the six-sided columnar forms of crystals, common to zero weather and high clouds, and, upper right, the granular forms due to condensation of fluid cloud droplets. The "cuff-button" and other forms shown in the middle row are general storm types. At the left (bottom row) is the most common of all snowflake forms. Magnified from 8 to 40 diameters.

Snow formation occurs usually, if not invariably, within all storms and in all climes; but in the torrid zones, and in summer in the temperate zones, its formation is, of course, confined to the frigid upper part of the storm-clouds. It melts and is converted into rain when it falls below a certain altitude, except upon high mountains.

The wondrous beauty of the tiny individual crystals of snow attracted attention in very early times, for we find references to them in many ancient writings. And in the Scriptures, in the Book of Job, we find the quotation, "Hast thou entered into the treasures of the snow?" But it is only very recently, since the advent of dry-plate photomicrography, that their beauty has been fully realized and portrayed.

Although many snow crystals, both of the same and of different storms, strangely resemble one another and possess features in common, new and unique patterns are continually being wrought in Nature's cloudland laboratory.

The greatest charm which this unique study possesses for those "entering into the treasures of the snow," is that these treasures are absolutely inexhaustible.

For all time this annual miracle of the snows will recur and the favored regions of the Earth will be showered with countless jewels of almost unbelievable beauty to delight and thrill observers.

The marvelous beauty of the snow crystals has been revealed in more than 4,000 photomicrographs (no two alike), secured by the writer during the last 37 years. Jewelers, art craft shops, metal workers, silk manufacturers, and schools are now using these exquisite snow crystals for designs and as objects for study.

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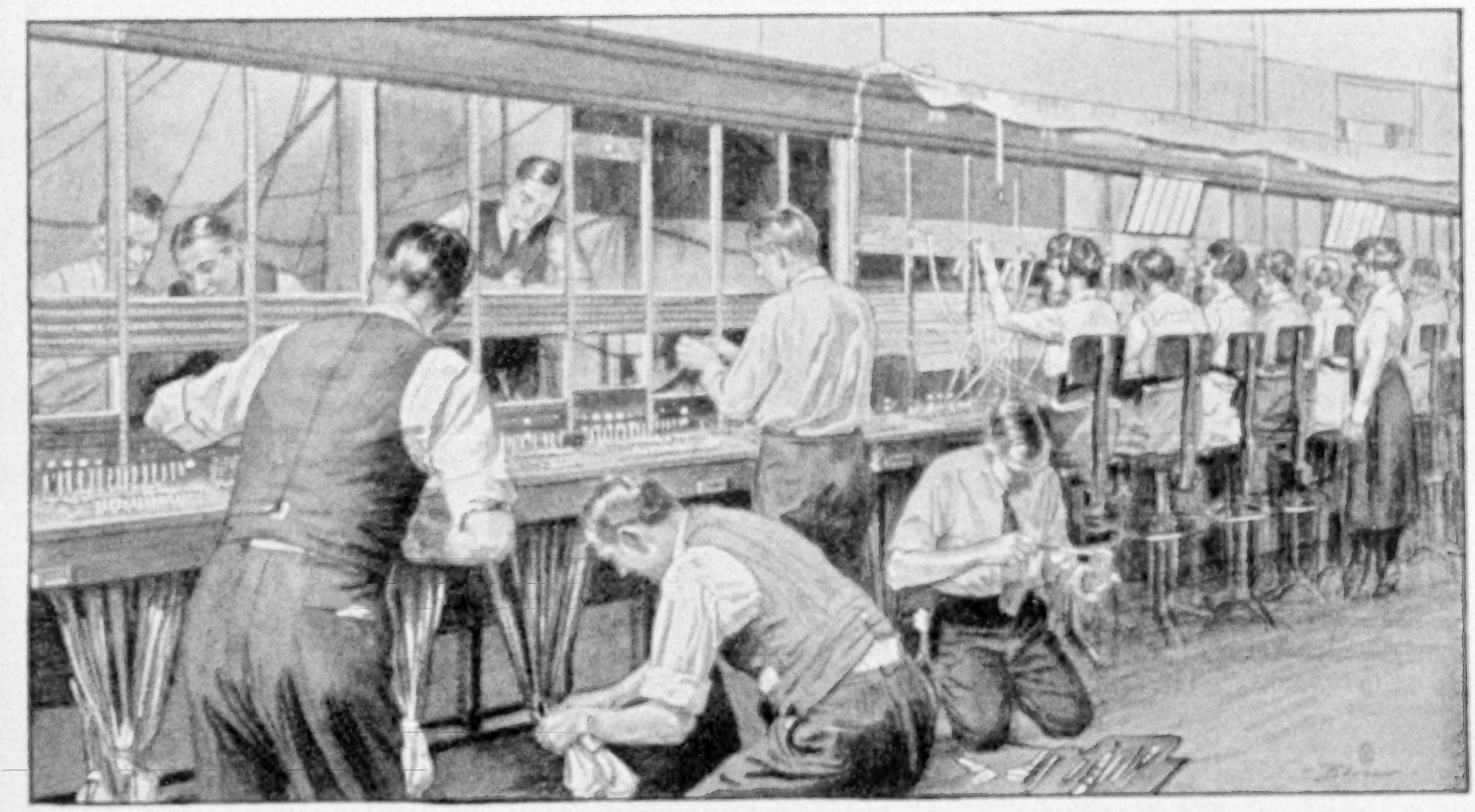

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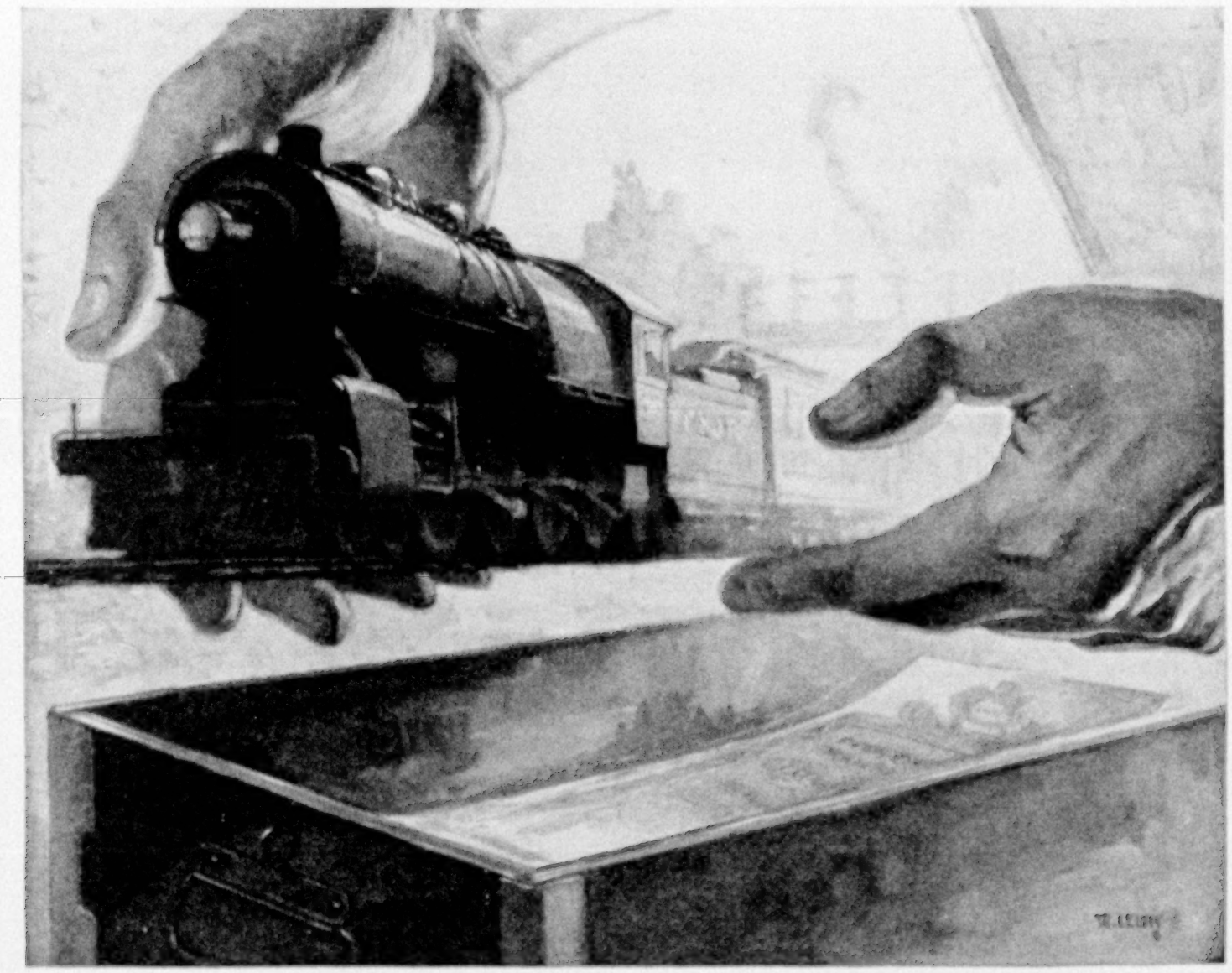

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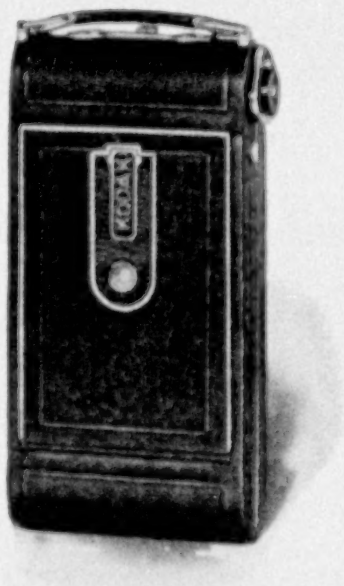

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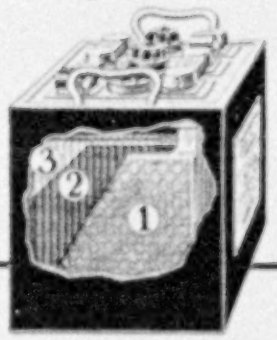

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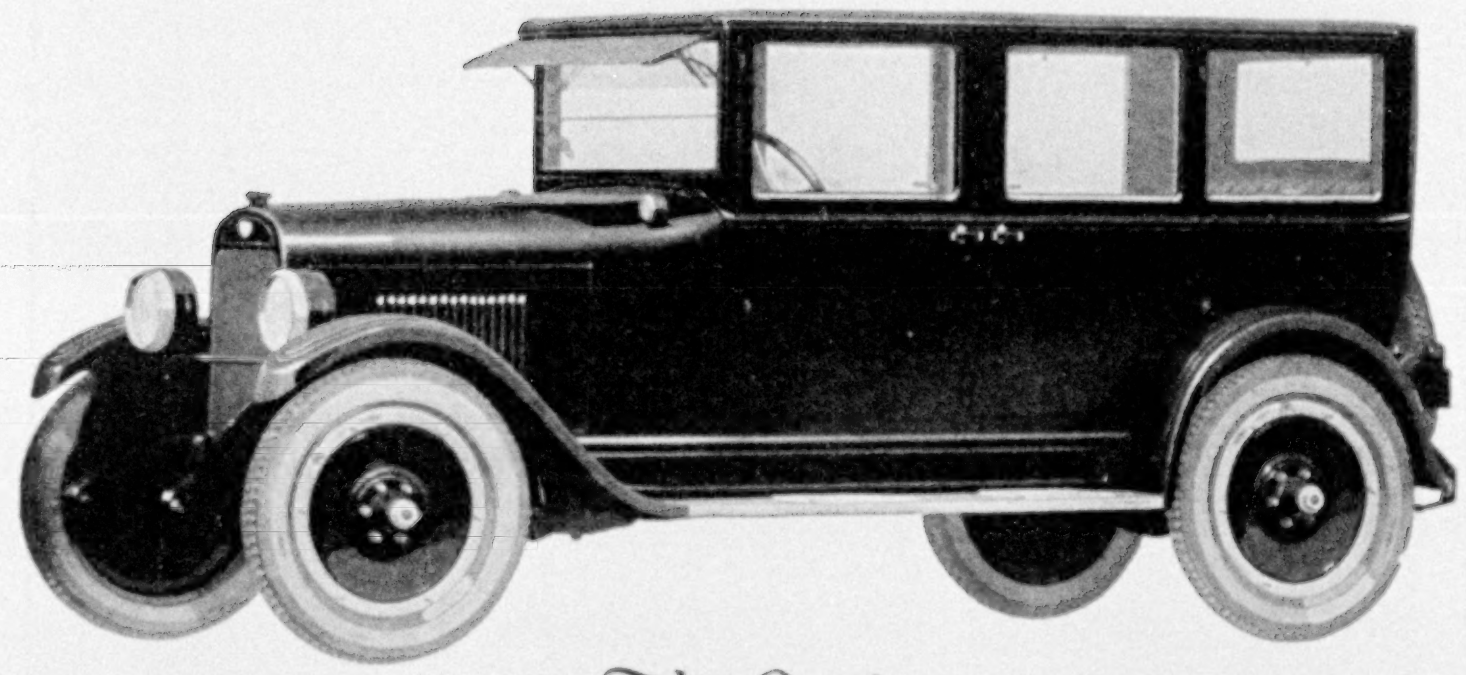

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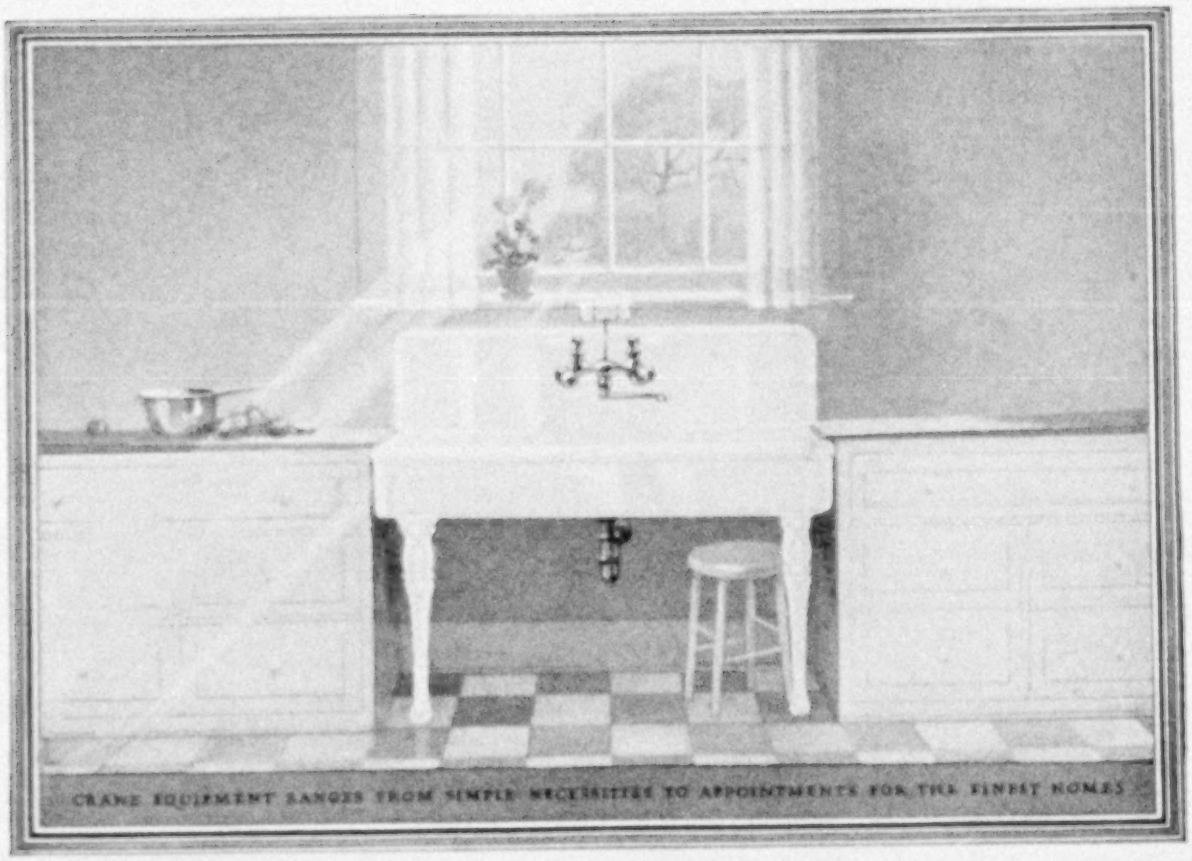

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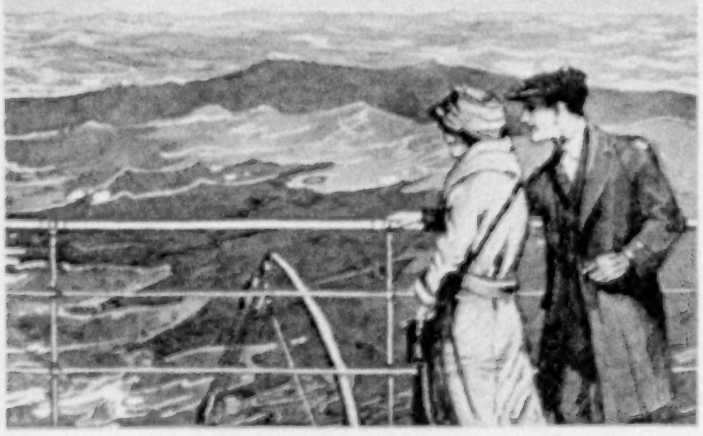

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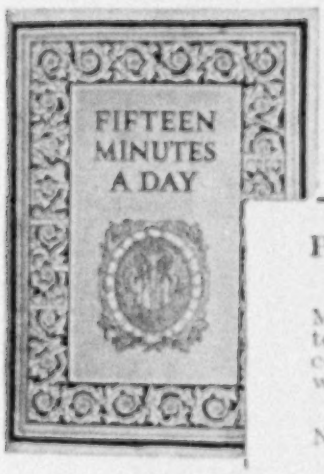

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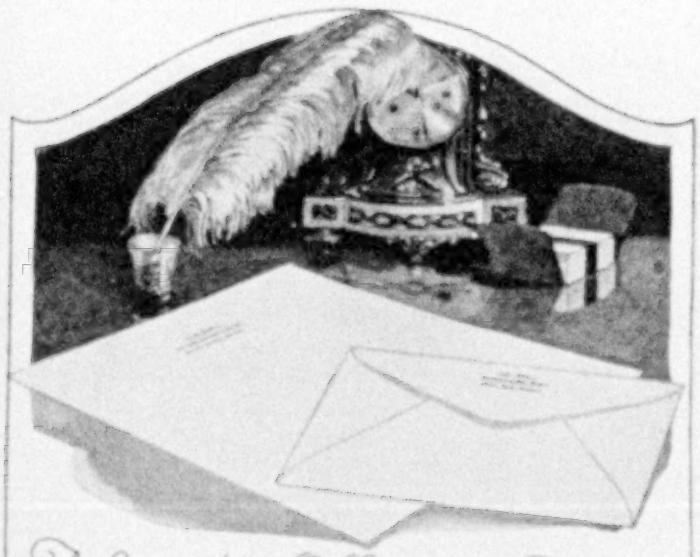

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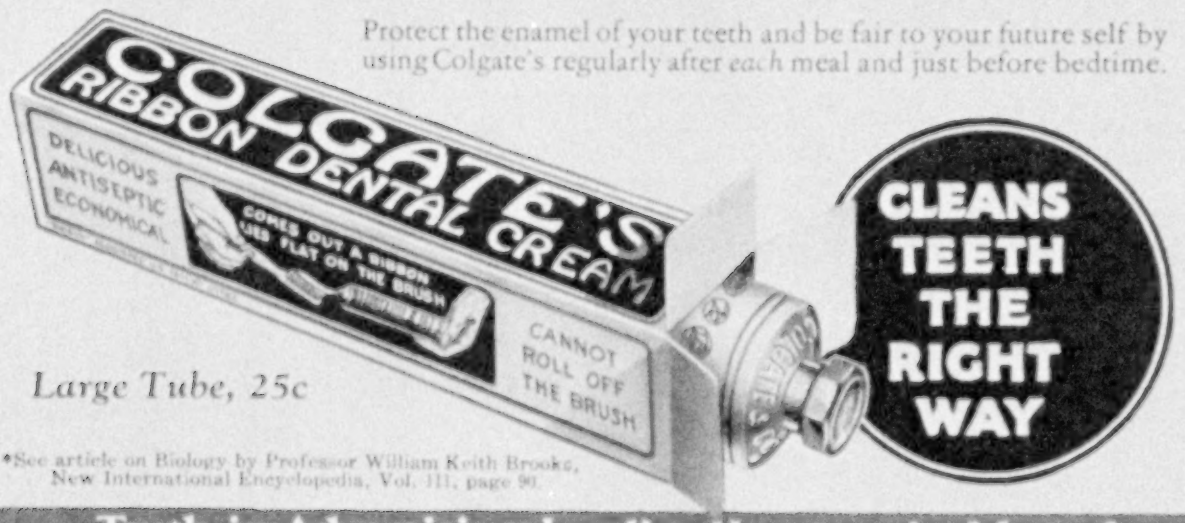

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*See article on Biology by Professor William Keith Brooks, New International Encyclopedia, Vol. III, page 90.

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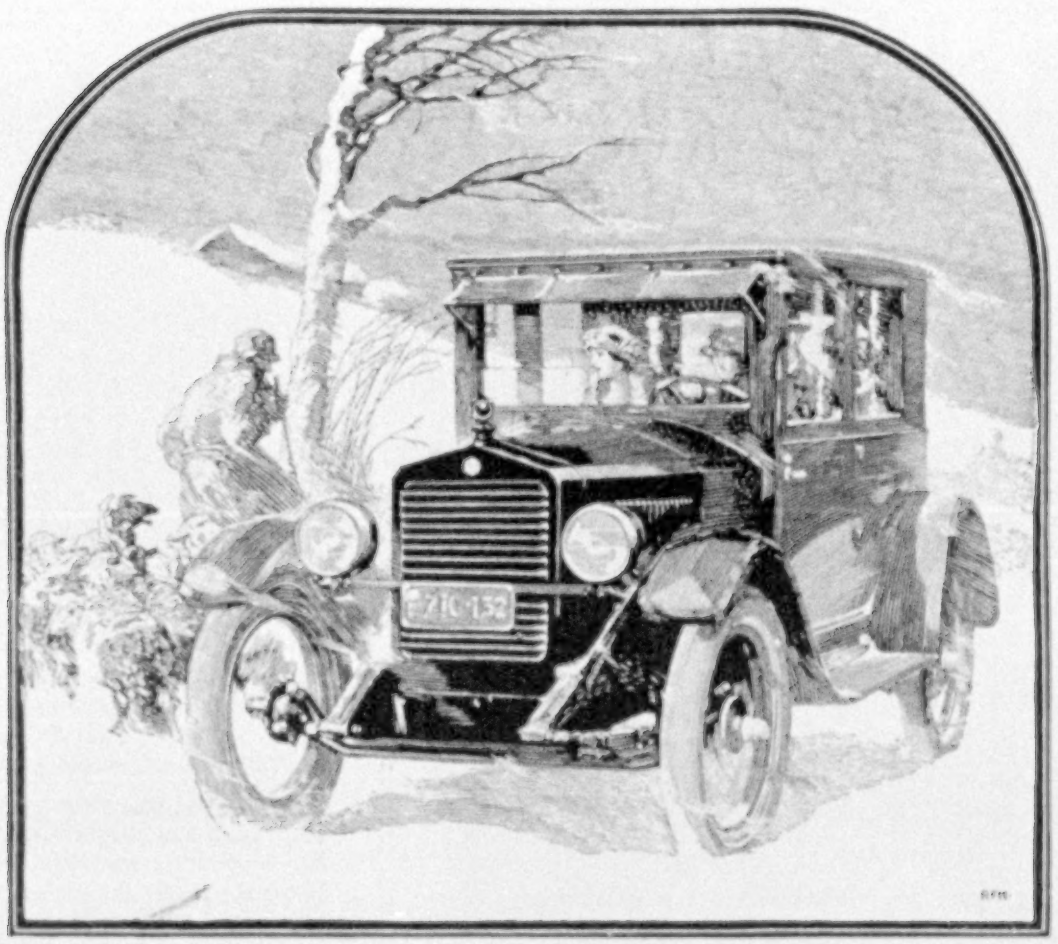

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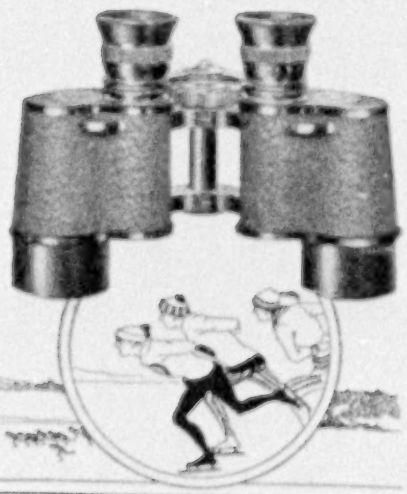

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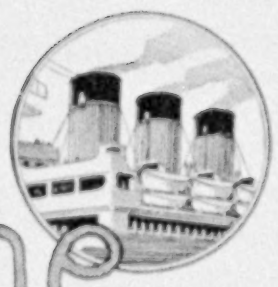

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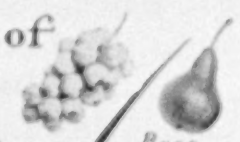

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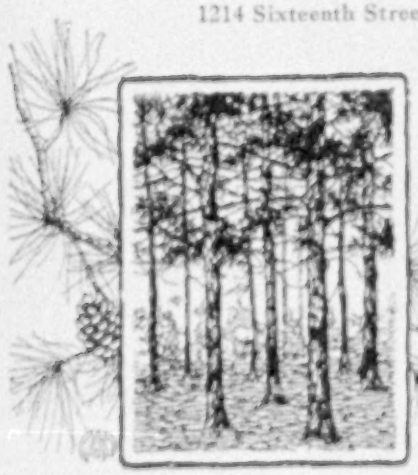

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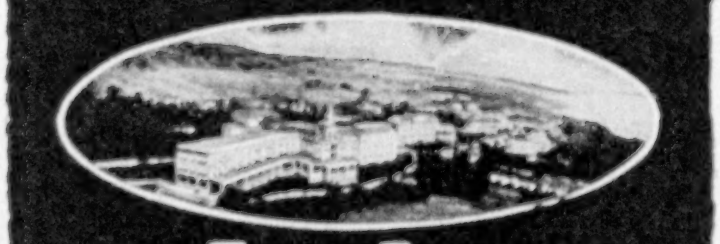

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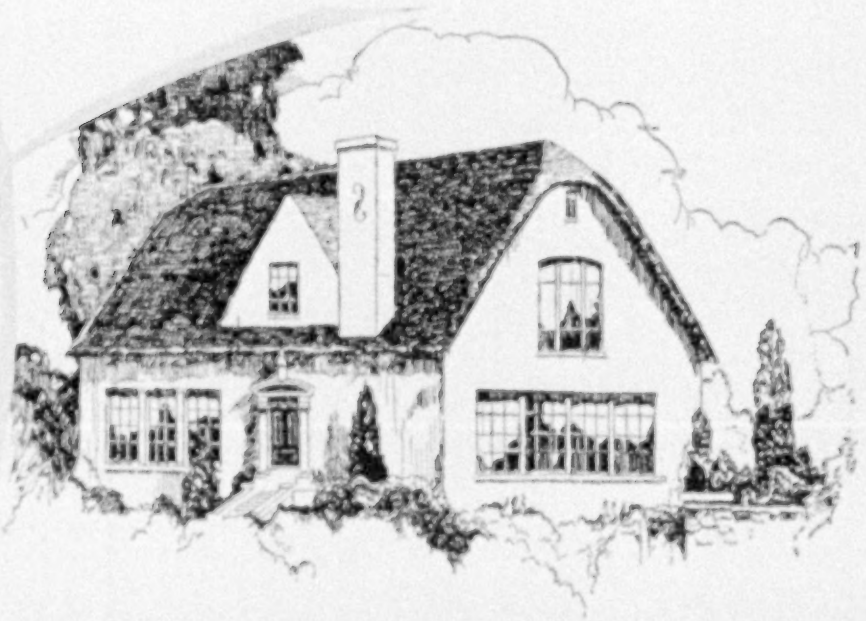

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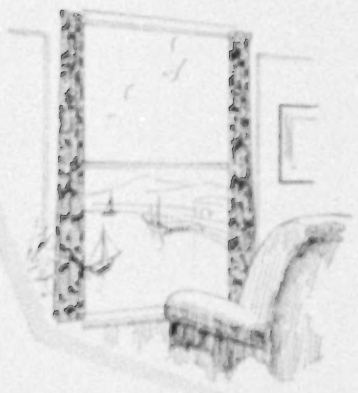

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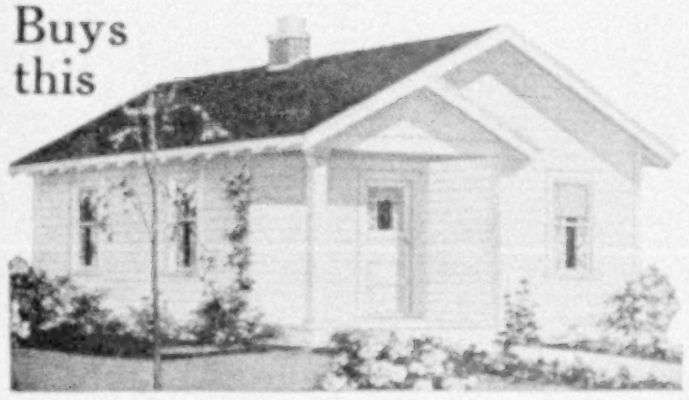

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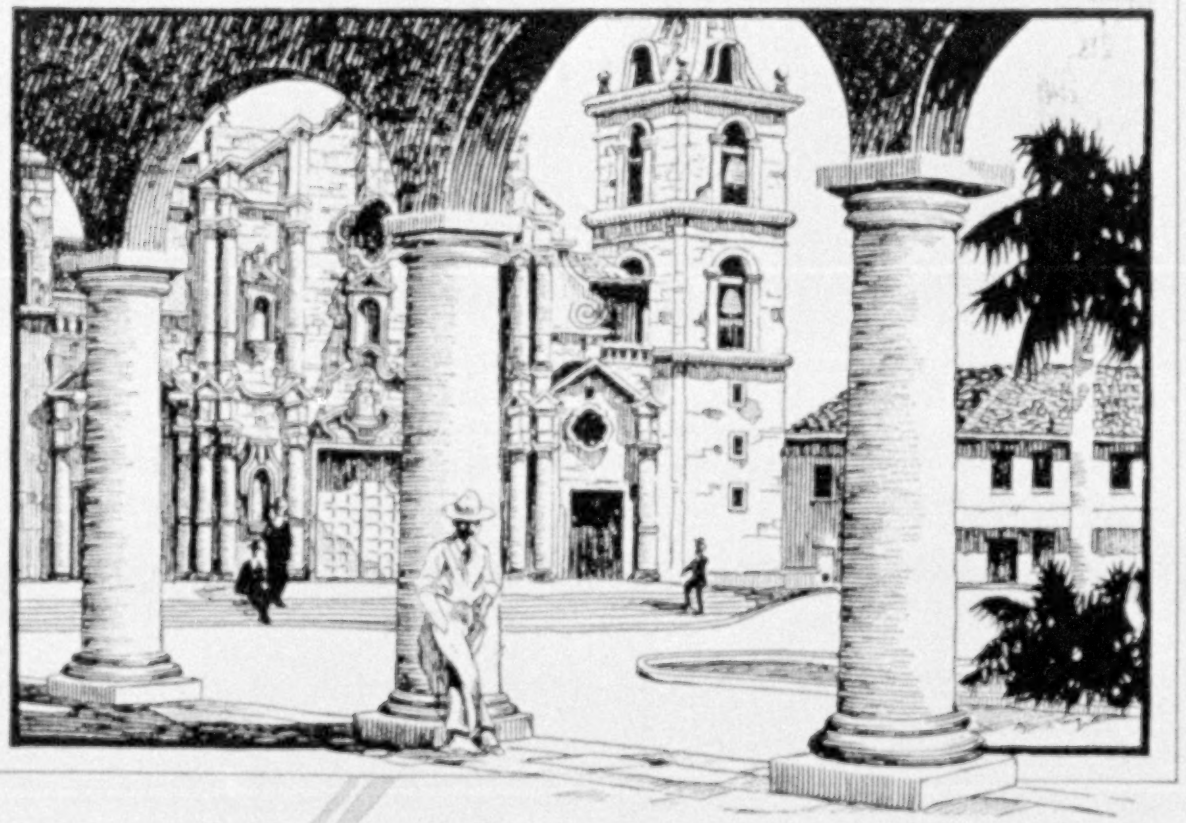

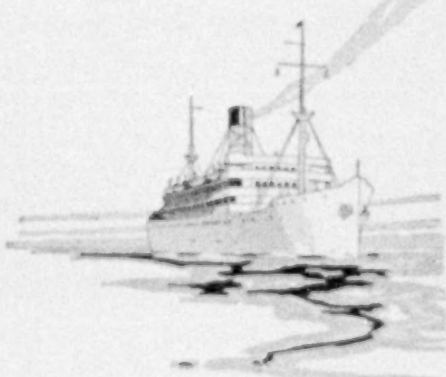

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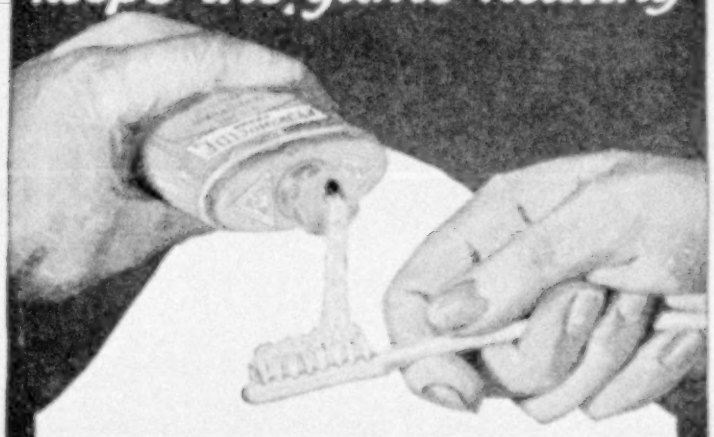
PYORRHOCIDE POWDER

keeps the gums healthy



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For more than three generations THOS. COOK & SON have given unremitting attention to the task of making travel more comfortable, more interesting, more profitable. An evergrowing clientele attests to the fact that their faithful service is keenly appreciated.

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Joyous New Kunderd Gladioli, Ruffled and Plain Petal types. *Catalog*, beautifully illustrated in colors, free upon request. It includes my personal cultural notes.

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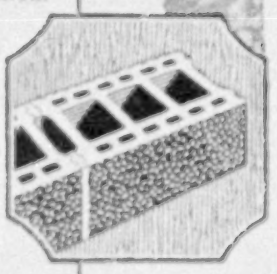
is positively a question of construction. You will assure comfort in your new home if you build it of Natco Hollow Tile, because the vertical arrangement of dead air spaces in the tile and the elimination of through mortar joints will furnish an effective, permanent barrier to heat, cold and dampness. Write for free, helpful book of Natco Homes today



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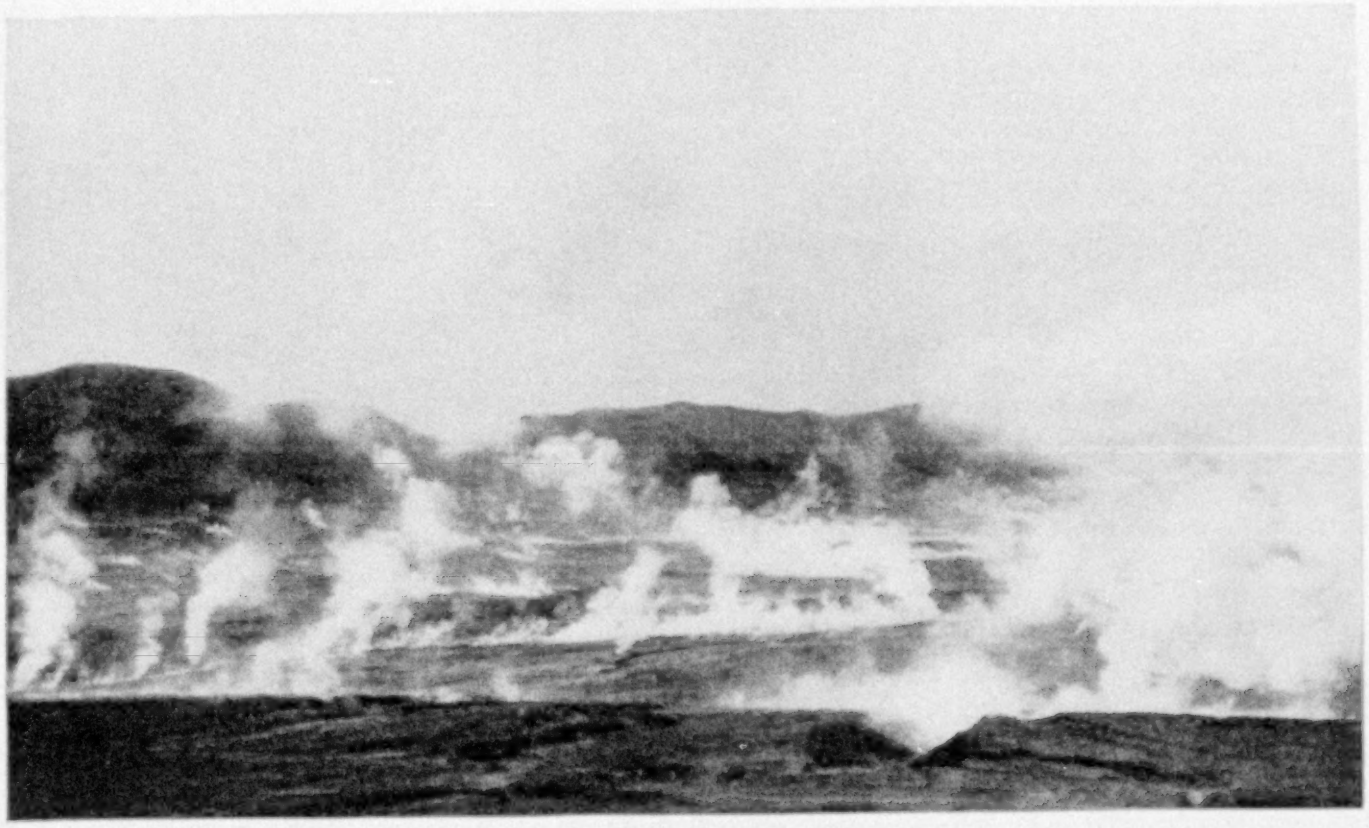

Do You Know America's Most Remarkable National Monument?

The Valley of Ten Thousand Smokes

BY

ROBERT F. GRIGGS,

Leader, Katmai-Alaska Expeditions of the National Geographic Society

The first complete account of The Society's five expeditions to the Katmai volcanic region and of the dramatic discovery of this Eighth Wonder of the World

THIS is the book of the year for old or young, layman or scientist, who enjoy constructive adventure and who are interested in earth's marvels and America's unsuspected wonder spots. For example, wouldn't you like to know how the cataclysmic Katmai eruption delayed the growth of your own home garden?

With this party of Alaskan explorers, the reader braves fearful heat and skin-abrading pumice storms, makes his perilous way over a thin crust among millions of fumaroles emitting superheated gases, camps for weeks on a vast cauldron of boiling mud, cooks his meals over a volcano, yet keeps his meat in an ice cave but a few steps away.

The World in the Making

Here one sees the world in the making. Rocks and minerals are being spewed from the depths to make a new crust. Here Nature is tirelessly working to restore living plants to a vast area buried hundreds of feet deep in floods of incandescent sand.

Your Personal Volcano

And all of it is your own property, for every American is a joint owner of this new National Monument of 1,000,000 acres, partly actively volcanic but also embracing some of the continent's most beautiful mountains, lakes, and forests—an area rich in game and fish.

Start your 1923 reading with this delightful and worth-while book. Your friend, too, will appreciate a first edition copy.

350 pages, Royal Octavo (7 x 10 inches); blue cloth, gold stamped; 212 engravings, 16 color plates; six special maps; eight line-drawings; on fine paper.

$3 postpaid in U. S. Foreign mailing, 25 cts.

NATIONAL GEOGRAPHIC SOCIETY

WASHINGTON, D. C.

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For enclosed $_____, send _____ copies of the book, "The Valley of Ten Thousand Smokes."

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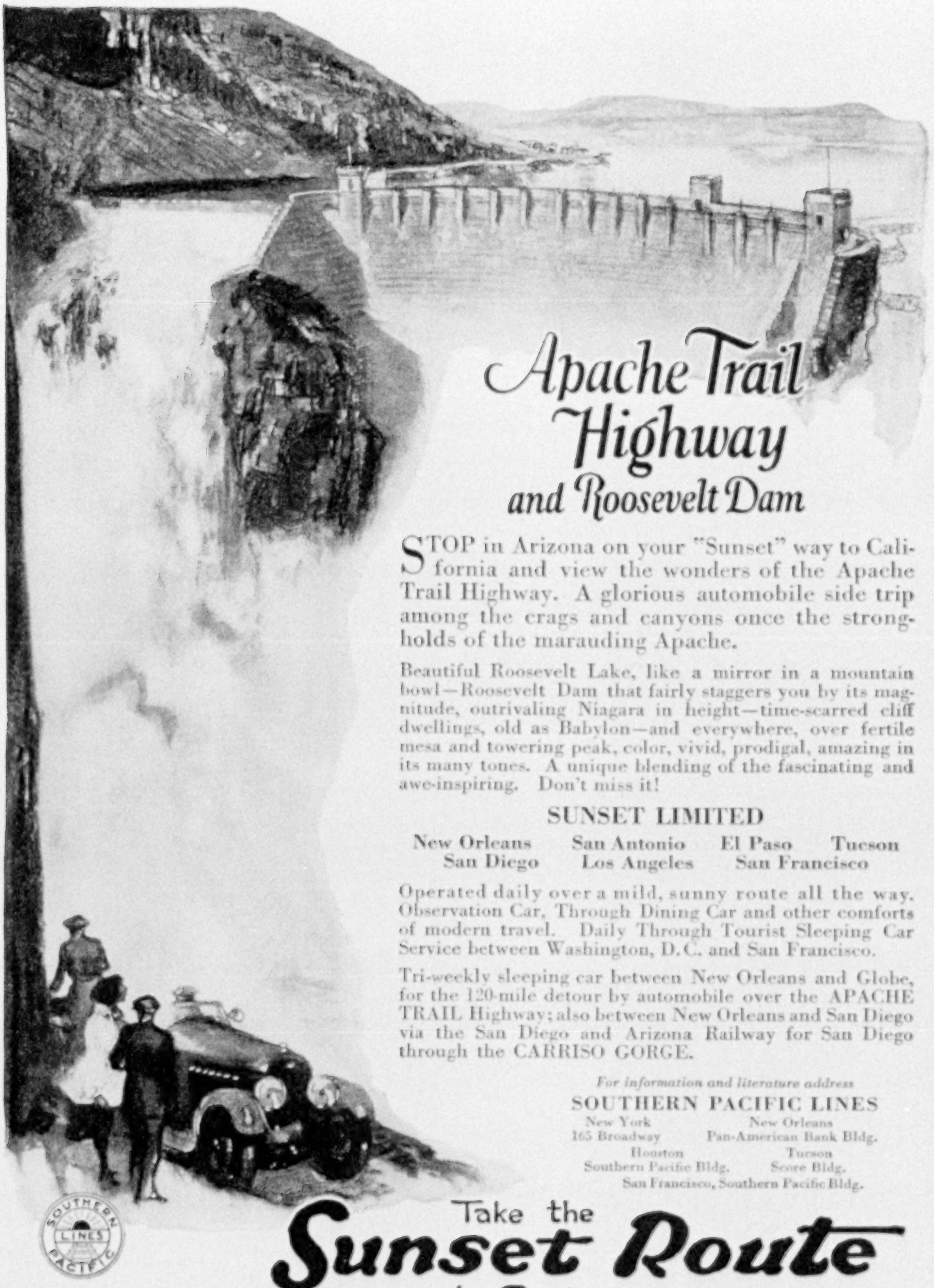

Apache Trail Highway and Roosevelt Dam

STOP in Arizona on your "Sunset" way to California and view the wonders of the Apache Trail Highway. A glorious automobile side trip among the crags and canyons once the strongholds of the marauding Apache.

Beautiful Roosevelt Lake, like a mirror in a mountain bowl—Roosevelt Dam that fairly staggers you by its magnitude, outrivaling Niagara in height—time-scarred cliff dwellings, old as Babylon—and everywhere, over fertile mesa and towering peak, color, vivid, prodigal, amazing in its many tones. A unique blending of the fascinating and awe-inspiring. Don't miss it!

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Operated daily over a mild, sunny route all the way. Observation Car, Through Dining Car and other comforts of modern travel. Daily Through Tourist Sleeping Car Service between Washington, D.C. and San Francisco.

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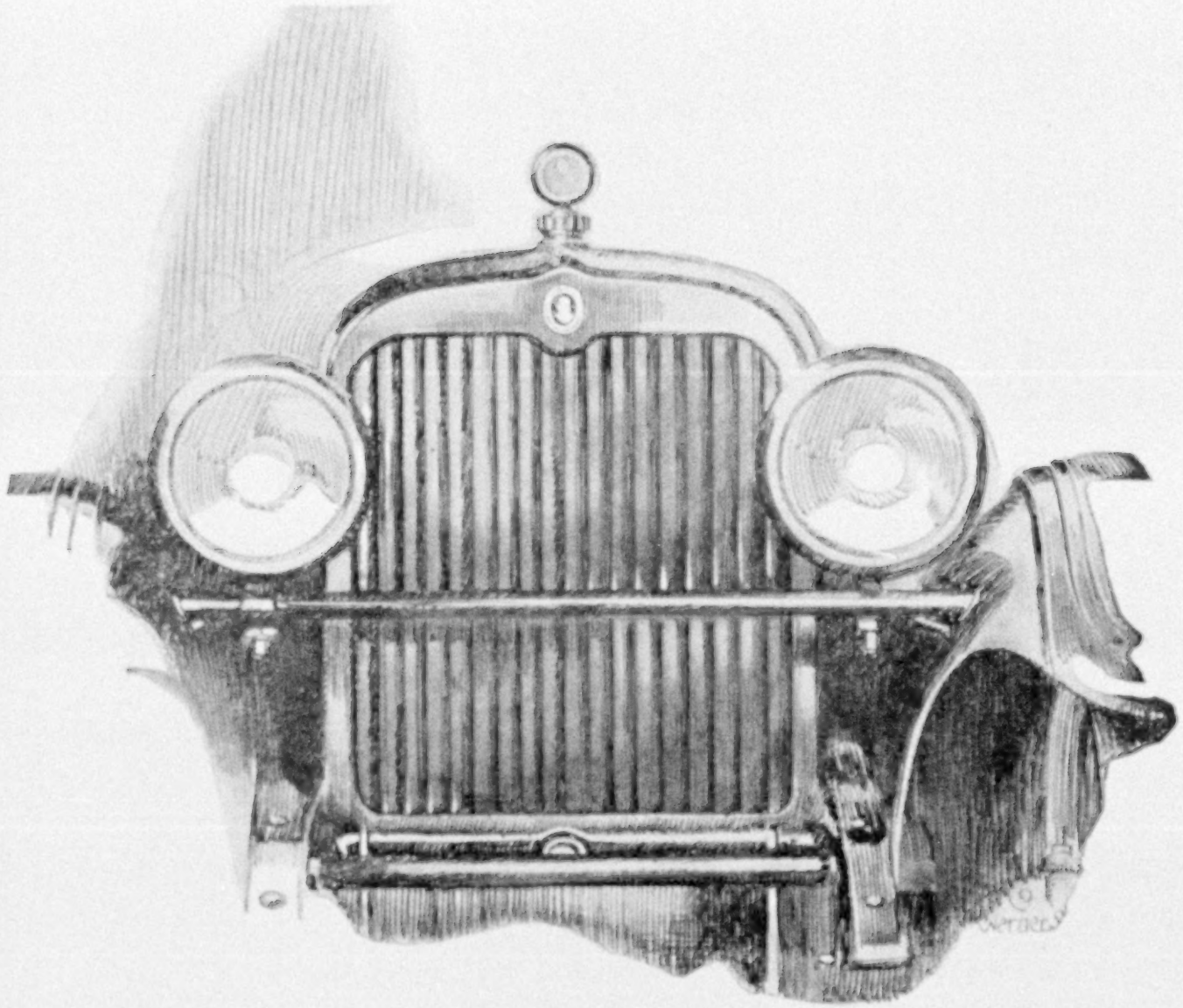
Take the **Sunset Route** to California

Every mile a scene worth while



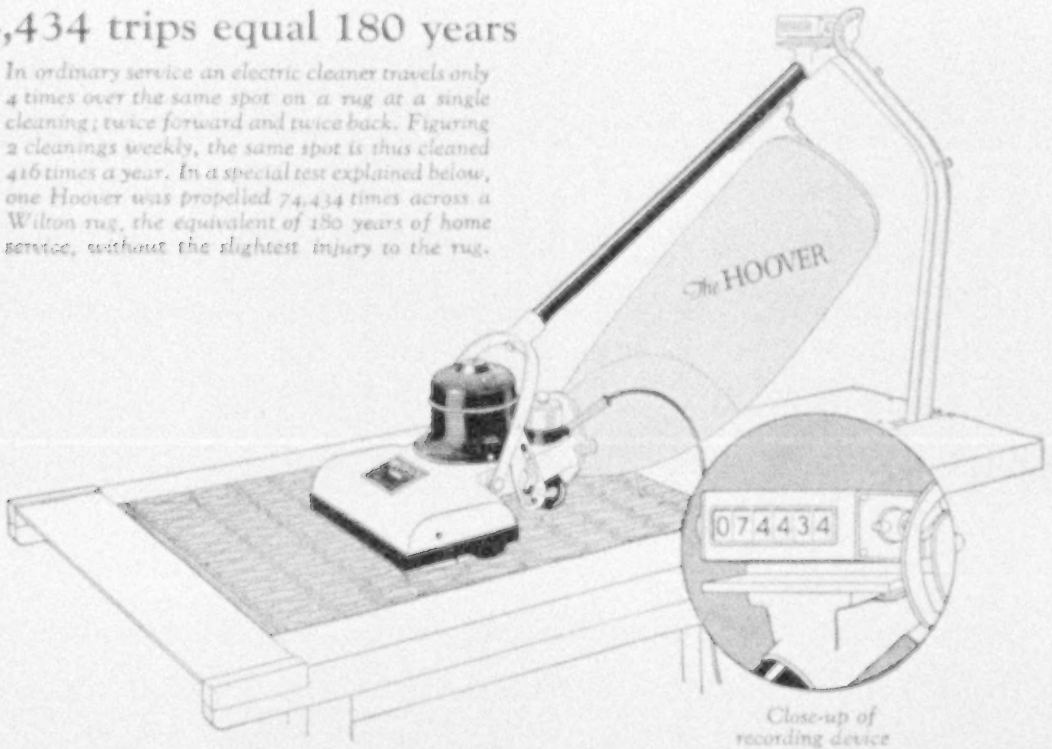
It has been our aim, from the beginning, to build a car for those who love fine things. The roster of LaFayette owners today tells us how impressively we have succeeded, for it contains in remarkable numbers the names of men distinguished in the political, the business and social life of the nation.

LAFAYETTE MOTORS CORPORATION
MILWAUKEE, WISCONSIN

LAFAYETTE

74,434 trips equal 180 years

In ordinary service an electric cleaner travels only 4 times over the same spot on a rug at a single cleaning; twice forward and twice back. Figuring 2 cleanings weekly, the same spot is thus cleaned 416 times a year. In a special test explained below, one Hoover was propelled 74,434 times across a Wilton rug, the equivalent of 180 years of home service, without the slightest injury to the rug.



Close-up of recording device

Is 180 Years of Proof Enough?

If you had heard the occasional remark that electric cleaners are hard on rugs, but could see a rug that had been cleaned by one for the equivalent of 180 years, you would be convinced that the rumor was untrue, wouldn't you?

That is just the evidence that we can offer you on The Hoover.

At a recent test, at the Ohio State Fair held in Columbus, from August 28th to September 2nd, 1922, under the supervision of representatives of the Columbus Chamber of Commerce, a stock Hoover, Model 105, was kept continuously gliding back and forth over the same small piece of ordinary Wilton carpet by a mechanical contrivance designed for the purpose.

For six days the carpet was gently beaten and cleanly swept in the identical manner that rugs in over a million homes are kept free from destructive embedded grit and unsightly clinging litter.

The results of this test are clearly shown in this quotation from a sworn affidavit by the Columbus Chamber of Commerce representatives:

> "At the conclusion of this test the exhibit was again inspected, the seals found to be intact, the counter reading showing that The Hoover had made 74,434 single strokes over the carpet. A careful examination of the carpet shows no appreciable wear or other deleterious effects."

Can you afford to let the life of your rugs be curtailed or their beauty diminished by destructive embedded dirt that only the gentle beating-sweeping action of The Hoover can thoroughly remove, when you can buy this efficient cleaner on our convenient payment plan for only 17c to 23c a day?

THE HOOVER COMPANY, NORTH CANTON, OHIO
The oldest and largest makers of electric cleaners
The Hoover is also made in Canada, at Hamilton, Ontario

The HOOVER

It BEATS ··· as it Sweeps — as it Cleans

PRESS OF JUDD & DETWEILER, INC.
WASHINGTON, D. C.

XUM

"Shucks!"
"Can't be done!"
"Must be a catch somewhere!"
"What kind of a book can you possibly give me for a dime!"

Good-natured comments like these are often received by us from skeptics; our answer is this: "Let us send you this set of thirty great masterpieces at our risk—not yours. Examine the books in your own home. See for yourself why over 20,000,000 volumes have been purchased by the most intelligent people in the country." Below are some astonishing facts about an offer that seems incredible.

HERE is a fascinating peculiarity of human nature. *Why is it that tens of thousands of people unconsciously judge the quality of an article by the price?* If the price seems high they think the quality *must* be exceptional; if the price is amazingly low they say: "Shucks—it can't amount to much."

This skepticism, we realize, is quite natural. When we first offered thirty de luxe, pocket-size volumes of the world's greatest masterpieces, all for only $2.98, we began to receive good-natured comments from doubters who wanted to be "shown." All of these letters were answered as well as we knew how. We explained in detail what these books were, how they looked, of what they were made. We referred to banks and magazines as to our reliability.

Can It Be True?

Moreover, we quoted from remarkable letters of praise sent in by purchasers. We repeated the price—$2.98 plus postage—and explained that this was NOT an installment payment, but the ENTIRE payment—that this was NOT the price of one, or five, or ten of these volumes, but the price of ALL THIRTY. Yet very often these skeptics wrote again and said: "Your offer is too good to be true; there must be a catch somewhere."

What can be done to overcome this natural caution of purchasers who have been accustomed to high prices? We know there must be tens of thousands of people who make this comment, not to us but to themselves. Perhaps you are one of them.

Here Is the Offer

If so, will you allow us to send you these books at our risk—not yours—so your *own eyes* can tell you what an unprecedented bargain this is.

When they arrive, note first that the set includes the finest work of such immortal authors as Shakespeare, Kipling, Stevenson, Emerson, Poe, Coleridge, Burns, Omar Khayyam, Macaulay, Lincoln, Washington, Oscar Wilde, Gilbert, Longfellow, Drummond, Conan Doyle, Edward Everett Hale, Thoreau, Tennyson, Browning and others—books which no one cares to confess he has not read and re-read.

Then note that each of these volumes is complete—this is not that abomination, a collection of extracts; note, too, that the 30 volumes contain over 3,000 pages; that the paper is a high-grade white wove antique, equal to that used in books selling at $1.50 to $2.00; see how clear and easy to read the type is.

What You Will Say

Then examine the beautiful binding. You will think it is genuine tooled leather, but it isn't; it is a limp, croft material which looks so much like leather as to confuse even an expert; it is so beautifully embossed, and so artistically tinted in antique copper and green, that this set now graces even the homes of millionaires. When you first see these books, like every one else, you will exclaim, in amazement: "How in the world can it be done?" The answer is no secret; simply by printing in editions of a *million books at a time.*

Surely, as an intelligent person, you want these great masterpieces in this convenient form, so you can again enjoy the spell of these famous stories, poems, plays, and essays—so that you can carry one with you wherever you go. Will you not, therefore, accept this fair offer? Let us send them to you for examination. Just mail the coupon or a letter; do not pay for the set until it arrives. Your money will be returned to you *at once* upon your request at any time within 30 days. As an inducement for prompt action we are offering to include, for a limited time, four extra volumes of Kipling free, as explained below.

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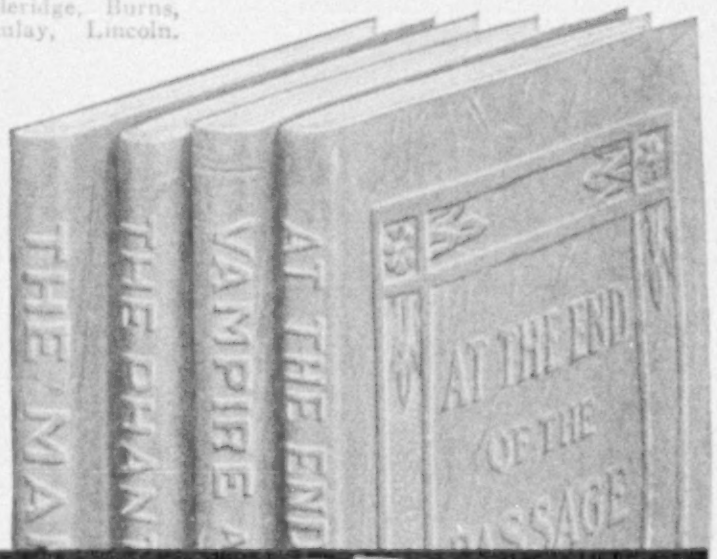

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Please send me the 30 volumes of the De Luxe edition of the Little Leather Library (and the 4 volumes of Kipling FREE). I will pay the postman $2.98, plus the postage, upon delivery. It is understood, however, that this is not to be considered a purchase. If the books do not in every way come up to my expectations, I reserve the right to return them any time within thirty days and you agree to return my money. It is understood that $2.98, plus the postage, is positively the only payment to be made.

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